UNIVERSITY OF BIRMINGHAM

THE RELATIONSHIP BETWEEN THAI LOCAL ADMINISTRATIVE ORGANISATIONS' COLLABORATIVE CAPACITIES AND OUTCOMES: THE CASE OF WASTE MANAGEMENT

by

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ABSTRACT

Thailand faces problems associated with an increase in municipal waste, only a small amount of which is managed using proper waste management techniques. In response to this problem, the government has implemented public policies that support collaborations between local administrative organisations (LAOs) and other organisations or groups in the management of waste. This thesis aims to enhance our understanding of such collaborations, particularly those in the area of waste management and collaborative capacities in general. The thesis draws upon data from a national-level survey and four case studies. This data identified new sub-types of collaborative capacities that can inform our conceptual understanding: policy capacity, which is a new sub-type of administrative capacity; and innovation capacity, which is a new sub-type of social capacity. Knowledge capacity is the most important sub-type of administrative capacity, and knowledge in the context of Thai LAOs consists of knowledge about collaboration and waste management technologies. Boundary spanning capacity is the most important sub-type of social capacity. This is the capacity of an organisation, rather than just one individual. These collaborative capacities are positively associated with successful collaboration, which is understood in terms of solutions to waste management problems and the creation of better working relationships amongst collaborating members.

DEDICATION

This thesis is dedicated to the memory of my beloved grandfather, Major Sumet Ruengrung.

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CHAPTER 1

INTRODUCTION

Introduction

The increase in the generation of municipal solid waste caused by population growth and increasing economic development has become one of the most serious environmental issues facing developing countries. Thailand is one country facing this problem, since only a small fraction of the waste there is subject to appropriate treatment or disposal. The country's central government has recognised that the amount of waste generated, and its management, constitutes a serious issue, so much so that it has enacted national policy on solid and hazardous waste management. In 2015, The Ministry of Natural Resources and Environment assigned this national policy to local administrative organisations[1] throughout the country, who would become responsible for enacting it, since they were already responsible for the collection, treatment, and disposal of waste within their administrative zones (Jutidamrongphan, 2018). However, this new policy requires the involvement of other stakeholders, such as investors, academic institutes, and local citizens, who collaborate with LAOs.

[1] The term 'local administrative organisation' (LAO) is used in Thailand to refer to local governments or local authorities. The term local government and local authorities are used interchangeably throughout this thesis.

Studies have been conducted on collaboration in other contexts between Thai LAOs and other organisations, for example collaboration between sub-district administrative organisations (SAOs) and regional centres for disability and development, the disabled, parents of children with disabilities, and volunteers working in community-based rehabilitation (Kamolwat, 2009), and collaboration between municipalities and communities in the context of disaster management (Raungratanaamporn, et al., 2014). These studies identified that the varied limitations of Thai LAOs are the major reason for the need to collaborate; for instance, knowledge-gaps and limitations associated with multi-boundary management (Kamolwat, 2009; Raungratanaamporn, et al., 2014).

Therefore, this chapter aims to present the current state of knowledge on collaboration in the context of Thai LAOs. It will serve as a foundation upon which to formulate the research questions, which reflect my interest in Thailand's national policy on waste management, an arena in which LAOs play a key role. The chapter consists of three sections: why collaboration is an important issue for Thai local governments; a literature review of research on local government collaboration in the Thai context; and an espousal of the thesis' aims, research questions and structure.

1.1 Why Collaboration is an Important Issue for Thai Local Government

Prior to recent decentralisation reforms, Thailand's government was characterised as a highly centralised system that granted limited functional autonomy, scope, personnel, funding and decision-making powers to the local government level. When the 1997 constitution was adopted, the system was reformed in line with central government's broader

decentralisation strategy (Suwanmala and Weist, 2008). Two hundred and forty-five central government functions were suddenly devolved to the local government level (Tanchai, 2003 cited in Chardchawarn, 2010). In addition, in accordance with Section 9 of the Constitution, LAOs were classed as statutory authorities that would work autonomously to represent the will of local citizens. They were authorised to formulate and implement local policies, allocate local resources, manage budgets, and control taxation and administrate local affairs within their jurisdictions (The Constitution of the Kingdom of Thailand 1997, 1997). At the time of writing, Thailand has 7,852 LAOs (Department of Local Administration, 2017), who each follow the 2007 constitution, the latest version to be adopted. Section 285 of this constitution states that LAOs shall have a local assembly and a local administrative committee. Members of the assembly shall be directly elected by local citizens and members of the administrative committee shall be elected, and then approved by the assembly (Chardchawarn, 2010). Although LAOs in Thailand are authorised to work autonomously and have a clear democratic link to local citizens, they are not able to fulfil the expectations of the constitution and local citizens with the limited human and financial resource they are given (Krueathep, 2008).

Thai LAOs heavily rely on revenues and grants allocated from central government. Although the Decentralisation Act of 1999 states that the share of local revenues in the central government's budget is mandated to be no less than 35 percent of all revenues by 2006, the 2006 share of local government was only 25.17 percent (Suwanmala and Weist, 2008). Moreover, between 2008 and the time of writing, central government only allocated around 25 of its budget for local expenditure. This shows that, whilst the central government devolved many functions, it did not provide adequate support, especially funding.

For this reason, some devolved functions are considered to be 'unfunded mandates.' An unfunded mandate is a new piece of national legislation that requires another state, local or tribal government, or a private entity, to perform functions without funding from central government (Amadeo, 2014). In the US, for example, unfunded mandates are opposed by US citizens, who perceive them to be a path to hidden taxation. Because the national government does not allocate the funds necessary for local governments to fulfil these mandates, local governments have to raise local taxes, meaning that the funding burden is shifted to citizens. As a result, such unfunded mandates lead to a rise in opposition (Shaffer, 1996).

In the case of Thailand, it can be assumed that Thai LAOs need to find other ways to fund their mandates and cannot be wholly dependent on central government. Krueathep (2006) argues that there are a large number of small LAOs that seem to lack the necessary capacity to deliver services efficiently because of limited financial resources and equipment, and unqualified personnel. Therefore, to respond to these issues, collaboration between LAOs has been introduced as a potential mechanism to enhance the capacities of LAOs to deliver local public services to citizens in Thailand decades ago.

1.2 Literature Review of Research on Thai Local Government Collaboration

I conducted a literature review in order to identify the current state of knowledge, the main findings, the research methods used, and the key gaps in studies on collaborations involving

Thai LAOs. Having done that, I positioned my thesis in relation to this existing body of literature.

I relied upon four data sources: 'Find it at Bham', 'Google Scholar', 'e-Thesis', and recommendations offered during interviews with Thai experts in local government and waste management from national organisations, such as the Pollution Control Department. Waste management in the context of this thesis refers to the entire lifecycle, from collection to disposal.

The search terms that I used consisted of: 'collaboration,' 'network,' 'partnership,' 'cooperation,' 'coalition,' 'Thai local government,' 'Thai local authorities,' 'Asia,' 'developing countries,' 'collaborative activities,' 'collaborative capacity,' and 'waste management.' The date range for publications was 1990 to 2018; 1999 was the year that Thailand implemented its decentralisation reforms, which saw the devolution of public service provision to the local level, and I also searched for literature prior 1999 to ascertain whether any collaboration involving Thai LAOs took place prior to the decentralisation reforms.

The four sections that follow discuss this existing literature. The focus in each section is on: the research design; the topics that the literature focuses on; the main conclusions of the literature; and its limitations. Together, these sections set out our existing knowledge of local collaboration in Thailand and identify the gaps in that knowledge that this thesis will fill.

1.2.1 Research Design

The literature review I conducted uncovered three types of research designs: those that relied on qualitative methods, mixed-methods, and quantitative methods (see Table 1.1).

Table 1.1: Research Designs Found in the Literature

Research Design	Number (N)	Percent (%)
Qualitative methods	37	77
Mixed methods	10	21
Quantitative methods	1	2
Total	**48**	**100**

The majority of the existing literature, 77 percent, employed qualitative methods. Of these, four types of qualitative methods were prevalent: case studies, comparative studies, action

research, and ethnographical studies. Common research methods that they used were, for instance, documentary analysis, document study of secondary data, field surveys, participant observation, short telephone conversations, in-depth interviews, semi-structured interviews, focus group interviews, reconstruction of key events within particular projects, the use of theoretical insights from recent literature, and grounded theory ethnography. The data were analysed using, for example, thematic coding techniques. The second highest proportion, 21 percent of the literature, employed mixed methods, using, for instance, questionnaire surveys, in-depth interviews, focus group discussions, document study, pre-test and post-tests using questionnaires, and participant observation. The data were analysed using, for example, logistic regression analysis, correlation analysis, the Weighted Average Index (WAI), one-way ANOVA, the least significant difference (LSD) test, descriptive statistical analysis, and qualitative data analyses. The smallest proportion, only 2 percent of the literature, employed quantitative methods that examined actual and projected data. Within this small group, data were analysed using cross-sectional techniques.

1.2.2 Topics

The existing literature focused on nine broad topics: how collaboration affects the performance or outcome of public service delivery; the nature of collaborative activities involving Thai LAOs; pre-requisites for successful collaboration; the capacities needed for effective Thai local government collaboration; why Thai LAOs collaborate; typologies of Thai local government collaboration; how such collaboration is organised; the various stages involved; and how government policy has affected the propensity to collaborate (see Table 1.2).

Table 1.2: Topics upon which the Literature Focused

(One study could have focused on more than one topic.)

Topic	Number (N)	Percent (%)
How collaboration affects performance/outcomes of public service delivery	11	23
The collaborative activities of Thai LAOs	10	21
Prerequisites for successful collaboration	8	17
The capacities needed for Thai local government collaboration	8	17
Why Thai LAOs collaborate	4	8

Typologies of Thai local government collaboration	4	8
How Thai local government collaboration is organised	4	8
The stages of Thai local government collaboration	3	6
How government policy has affected the propensity to collaborate	2	4

The highest proportion of the literature, 23 percent, focused on how collaboration affects the performance or outcomes of public service delivery, for example, by studying how networked collaborations enhance both the performance and democratic accountability of Thai local governments and affect the co-production of local governments' efforts to foster community empowerment. The second highest proportion of the literature, 21 percent, focused on understanding the nature of collaborative activities amongst Thai local governments, for example by studying the activities of collaborative network involved in sub-national governance after the implementation of the devolution agenda in 1999, and the

role of collaborative entrepreneurs and collaborative managers in the initiation and embedding of small council collaboration policy. The third highest proportion of the literature, 17 percent, focused on the prerequisites for successful collaboration, and on the capacities needed for Thai local government collaboration, focusing, for example, on the factors contributing to the success of attempts to foster collaboration for waste management amongst Thai local governments, and capacity building within Thai local authorities in the context of technical operations. The other four topics had only a small number of studies and are insignificant in the context of this thesis.

1.2.3 Findings

The findings from the existing literature can be organised into ten different groups according to whether their focus lay on the: scope of collaboration, success of collaboration, collaborative activities, participants, organisation of collaboration, collaborative capacities, explanation for why collaboration took place, stages of collaboration, extent of collaboration, and intensity of collaboration (see Table 1.3).

Table 1.3: Main Findings from the Literature
(One study could have discussed more than one type of finding.)

Finding	Number (N)	Percent (%)
Scope of collaboration	48	100
Success of collaboration	26	54
Collaborative activities	19	40
Participants in collaboration	17	35
Organisation of collaboration	13	27
Collaborative capacities	13	27
Explanation for collaboration	10	21
Stages of Collaboration	3	6

Extent of collaboration	1	2
Intensity of collaboration	1	2

(1) Scope of Collaboration

All of the literature discussed the scope of collaboration. Collaboration amongst Thai local governments have varied scopes, but these are all broadly related to public service delivery, for instance, the introduction of an urban environmental planning and management system (environmental management) (Atkinson and Vorratnchaiphan, 1996); water governance (infrastructure management) (Neef, 2008); educational and cultural promotion programmes (educational and cultural management) (Krueathep, Riccucci and Suwanmala, 2008); dengue control (public health management) (Kittayapong et al., 2012); planning and implementing the improvement of housing conditions in local communities (housing management) (Bhatkal and Lucci, 2015); public service provision for elderly people (Supromin and Choonhakhlai, 2017); waste-to-energy investment (waste management) (Forsyth, 2005); and the dual benefits associated with reducing the financial burden associated with waste management and lower greenhouse gas (GHG) emissions (waste management) (Challcharoenwattana and Pharino, 2015).

(2) Success of Collaboration

54 percent of the literature reported major findings that focused on the success of collaboration. Two major sub themes were prevalent in this regard: key factors leading to successful collaboration, and the importance of collaboration on the success of public service management.

(2.1) Key Factors Leading to Successful Collaboration

The literature that discussed the key factors leading to successful collaboration amongst local governments can be grouped into three separate sub-categories: collaboration in general; collaboration involving the management of specific types of public services; and collaboration directed at waste management. The first sub-category discusses key factors underpinning successful collaboration in general terms. For example, Taveekan (2013) stated that there were three factors that could improve outcomes of collaborative local governance: trust between stakeholders, trust building, and learning from past successes.

The second sub-category focuses on collaboration involving the management of specific types of public service (asides from collaboration involving waste management), for instance, slum upgrading, dengue control, disaster management, public service provision for elderly people, and housing management (Archer, 2010; Kittayapong et al., 2012; Chopyot, 2016; Supromin and Choonhakhlai, 2017; Bhatkal and Lucci, 2015). The literature identifies six key factors influencing the success of this type of collaboration: collaborative capacity (e.g. the ability to work collectively within the community, government support, financial

support, understanding the needs of people in the community, continuous support from local government executives, compatibility of areas of collaboration within local governments, availability of necessary equipment and tools, autonomy in local policy making, correct and up-to-date information, committed personnel and budgets, supportive national policies, laws and plans, and institutional and funding capacities (Archer, 2010; Kittayapong et al., 2012, Chopyot, 2016; Supromin and Choonhakhlai, 2017; Bhatkal and Lucci, 2015), leadership (e.g. community leadership, leadership of local government decision makers, and political leadership) (Archer, 2010; Chopyot, 2016; Supromin and Choonhakhlai, 2017; Bhatkal and Lucci, 2015), the relationship between stakeholders (e.g. horizontal ties between stakeholders at the community level and the closeness of collaborative personnel) (Archer, 2010; Chopyot, 2016), awareness (e.g. awareness of people in the communities and awareness of collaborative local governments) (Kittayapong et al., 2012; Chopyot, 2016), stakeholders and their existing collaboration (eg. responsible governmental agencies and partnerships or networks of stakeholders) (Supromin and Choonhakhlai, 2017), and collaborative activities (e.g. continuous collaborative activities, civic participation in collaboration, conformity with the budget, transparency in the implementations of collaboration, and community-driven processes) (Chopyot, 2016; Bhatkal and Lucci, 2015).

The last sub-category is collaboration involving waste management. There were seven key factors that led to the success of this kind of collaboration: the organisation of the collaboration (e.g. minimising transaction costs and maximising assurance mechanisms) (Forsyth, 2005), the relationship between stakeholders (e.g. maximising trust) (Forsyth, 2005), collaborative activities (e.g. maximising accountability and continuous learning by doing, including learning from failures, and improving practices) (Forsyth, 2005; Sang-Arun

and Bengtsson, 2012), stakeholder involvement (e.g. stakeholder involvement, implementing a participatory approach that shares responsibility and benefits between a local government and other stakeholders, and participation of community members) (Troschinetz and Mihelcic, 2009; Sang-Arun and Bengtsson, 2012; Vongsurakrai, 2013), solutions to problems that led to collaboration (e.g. technological, socio-cultural, legal, institutional, economic, and environmental solutions to particular problems) (Guerrero, Maas and Hogland, 2013), leadership (e.g. political leadership of a local government) (Sang-Arun and Bengtsson, 2012), and collaborative capacity (e.g. supportive mayoral policies) (Vongsurakrai, 2013).

In contrast, there is literature that presented the key factors that, at least partially, caused the failure of collaboration amongst Thai local governments over waste management. For example, Charuvichaipong and Sajor (2006) stated that there were three factors that caused an absence or lack of civic culture and the publicly tested opportunity structures for public participation needed for the accomplishment of Thai local governments' pilot waste separation collaboration projects: a dearth and lack of autonomous civil society organisations, dominance of traditional top-down and non-participatory styles of public administration amongst local authorities, and the deep-rootedness of patron-client relationships between local government officials and members of the local community.

(2.2) Collaboration as a Key Factor for Successful Public Service Management

The literature that discussed the role of collaboration as a key factor for successful public service management at the local government level can be grouped into three separate sub-

categories: collaboration in general, collaboration involving the management of public services, and collaboration involving waste management. The first sub-category focuses on general collaboration involving Thai local governments. Laochankham (2018) states that opportunities for improving or maintaining local service delivery after Thailand's post 2006 national political crisis were caused by stronger collaboration among Thai local governments, and collaboration between Thai local governments and the private sector. However, Soithong (2011) argued that networks of civic engagement and more widespread trust failed to increase the institutional performance of Thai local governments.

The second sub-category focuses on collaboration involving the management of specific public services, such as the management of dengue as a public health concern, tourism and natural resources (Kittayapong et al., 2012; Buaban, 2016; Scherr et al., 2001). When it comes to collaboration directed at dengue control, inter-sectoral collaboration led to a significant reduction in the pupae per person index when compared to control cases, raised public awareness of the application of eco-friendly vector control approaches, and increased public participation in inter-sectoral collaboration for dengue control (Kittayapong et al., 2012). In terms of collaboration for tourism management, collaboration encouraged higher levels of local participation, and led to the development of more sustainable forms of tourism (Buaban, 2016). Lastly, Scherr et al. (2001) stated that multi-sector coalitions provided support for local organisations (LOs) to become successful in natural resource management (NRM).

The last sub-category focuses on collaboration around waste management. According to the literature, collaboration could benefit waste management in three ways: it could increase its overall success, increase the rate at which waste management outcomes are achieved, and enhance the capacity for waste management. With regards to the first benefit, Ray (2008) argued that bilateral, regional or multilateral cooperation was a better option for waste management in developing countries in Asia, including Thailand, than the international trade in waste. In terms of the accomplishment of waste management purposes, collaboration could reduce the amount of waste sent for disposal, avoid environmental externalities and greenhouse gas emissions, increase resource efficiencies, support local recycling businesses, generate income for local residents, and raise the social status of waste pickers (Sang-Arun and Bengtsson, 2012).

In addition, the study of Pimpuang and Kessomboon (2018) showed that collaboration in the design of waste management education initiatives led to changes in individuals' behaviour. Finally, collaboration was also shown to enhance waste management capacity, for instance by enhancing the capacity to mobilise resources directed at municipal solid waste management (Taylor, 1999), and sustaining public participation in collaborative community-based waste management activities (Challcharoenwattana and Pharino, 2015). In contrast, a lack of coordination between sectors, local authorities, and organisations can cause common problems for the management of solid waste (Mmereki, Baldwin and Li, 2016).

(3) Collaborative Activities

40 percent of the literature presented findings on collaborative activities. There are six major collaborative activities in the context of Thai local government: identifying problems and planning responses, decision making, capacity-building, providing information, task assignment, the implementation of policies or strategies, and resource exchanges. The first collaborative activity involves identifying problems and planning responses. For example, in urban environmental planning and management, local governments identified urban environmental problems in their areas and developing plans to address them (Atkinson and Vorratnchaiphan, 1996).

The second is decision making (Krueathep, 2008). For example, collaboration around the management of municipal solid waste (MSW) involved decision-making on the selection of affordable and sustainable MSW management technologies, and the identification and recovery of MSW investment, collection and disposal costs (Taylor, 1999). Moreover, in the context of local development, SAOs firmly encouraged local people to participate in the planning process so that master plans could be developed collaboratively (Khongsatjaviwat and Routray, 2015). However, empirical evidence showed that decision-making in the context of Thai local government collaboration was unsuccessful. For example, in the context of water governance, most participants felt that there was not much space for negotiations of plans and procedures, and that meetings were organised only to legitimise government actions. In addition, participatory exercises, such as public hearings, failed to enhance two-way communication and build trust amongst stakeholders (Neef, 2008).

Third, capacity building is also mentioned as a collaborative activity. For example, stakeholders needed to provide access to external training and other on-going support if local organisations (LOs) were to be successful in collaborative natural resource management (NRM) (Scherr et al., 2001). The fourth collaborative activity is information provision. For example, in waste-to-energy collaboration, it provided information about the new technologies to be provided for local people (Forsyth, 2005). Furthermore, in municipal solid waste management collaboration, local governments produced reliable data for stakeholders, and created proper information channels within local governments and between local governments and other stakeholders (Guerrero, Maas and Hogland, 2013).

The next activity is the assignment of tasks. Sonsri (2006) suggested that collaborative tasks should be assigned to collaborative sectors depending on their talents and resources. For example, a municipality can be an orchestrator, facilitator, or catalyst of collaborative projects, and can enact regulations, guidelines and support to encourage collaboration in different sectors. The private sector also plays a role; it can improve the public services provided by a municipality through four possible types of involvement: contracts, concessions, franchises, and open competition. NGOs could also work with local people in the implementation of collaborative projects. The media also helped in intensifying the information of collaborative campaigns to increase public awareness and knowledge, and to influence attitudes and thus change their behaviours towards desirable ones. Lastly, local communities help to tailor public services to meet their needs and monitor municipal works.

The fifth collaborative activity involves the implementation of policy or strategy, which is related to the scope of collaboration. For example, in collaboration involving waste management, a range of policy or strategies were implemented, such as waste separation processes, the creation of local recycled-material markets (Troschinetz and Mihelcic, 2009), the education of local residents in the 3Rs (reducing, reusing and recycling) and other waste management principles, attempts to increase public awareness surrounding waste reduction, the promotion of centralised composting (Sang-Arun and Bengtsson, 2012), and support for local waste management initiatives. For example, a 'Garbage for Eggs' campaign was a local initiative introduced by the Seventy Rai Community, wherein eggs were provided in exchange for recyclable materials (Visvanathan and Tränkler, 2003). Moreover, networks involving collaboration across sectors could also be encouraged for other purposes, involving the fostering of closer relationships between local government officials and community members (Archer, 2010). The last collaborative activity of Thai local government collaborative efforts is resource exchange (Krueathep, 2007; (Krueathep and Parisudhiyarn, 2007).

(4) Participants in Collaboration

35 percent of the literature contained findings that focused on the participants of collaboration. In it, we see that there are 2 groups of participants involved in collaboration with Thai local governments: extant central government bodies, and those from outside of government. The first group contains those in central government or from central government agencies who engage in various forms of collaboration with local governments. For example, collaboration for national resource management (NRM) (Scherr, Amornsanguasin, Chiong-Javier, Garrity, Sunito and Saharuddin, 2001), collaboration in

general (Krueathep, 2004), collaboration after the implementation of the devolution policy in 1999 (Krueathep, 2008), and collaboration directed at slum upgrades (Archer, 2010). Other participants in this group include local governments (Krueathep, 2008), other government authorities (Archer, 2010), occupational groups or professional organisations (e.g. architects) (Krueathep, 2004; Krueathep, 2008; Archer, 2010), academic organisations (Krueathep, 2008), local businesses (Krueathep, 2004; Krueathep, 2008), international development organisations (Krueathep, 2008), foreign donors (Scherr, Amornsanguasin, Chiong-Javier, Garrity, Sunito and Saharuddin, 2001), non-governmental organisations (NGOs) (Scherr, Amornsanguasin, Chiong-Javier, Garrity, Sunito and Saharuddin, 2001; Krueathep, 2008; Archer, 2010), local communities (Krueathep, 2008), and community leaders (Krueathep, 2004).

The second group includes participants from outside central government who are involved in different forms of local government collaboration, for instance, collaboration directed at urban environmental planning and management (Atkinson and Vorratnchaiphan, 1996), public health and environment management (Sonsri, 2006), dengue control (Kittayapong et al., 2012), improving public works (Sudhipongpracha and Wongpredee, 2015), rural development (Khongsatjaviwat and Routray, 2015), housing management (Bhatkal and Lucci, 2015), tourism management (Buaban, 2016). Other organisations or groups participating in this group include, for example, local bureaucrats (Sudhipongpracha and Wongpredee, 2015), local political leaders (Sudhipongpracha and Wongpredee, 2015), public health service organisations (Kittayapong et al., 2012), public health experts (Kittayapong et al., 2012), professionals (Bhatkal and Lucci, 2015), academic institutions (Kittayapong et al., 2012), private companies (Sonsri, 2006), academics (Bhatkal and Lucci,

2015), non-governmental organisations (NGOs) (Sonsri, 2006; Kittayapong et al., 2012; Bhatkal and Lucci, 2015), local community organisations (LCOs) (Atkinson and Vorratnchaiphan, 1996), community leaders or committees (Atkinson and Vorratnchaiphan, 1996; Sonsri, 2006; Kittayapong et al., 2012; Sudhipongpracha and Wongpredee, 2015; Khongsatjaviwat and Routray, 2015), community volunteers (e.g. elderly volunteers and young residents) (Sonsri, 2006; Kittayapong et al., 2012), local households and citizens (Kittayapong et al., 2012; Sudhipongpracha and Wongpredee, 2015; Khongsatjaviwat and Routray, 2015), community networks (Bhatkal and Lucci, 2015), and local media bodies (e.g. local newspapers and radio stations) (Sonsri, 2006).

In the case of Thai local governments' collaboration around waste management, there are forms of collaboration that involve central government or central government agencies, for example between the central and local government (Mmereki, Baldwin and Li, 2016). Other forms of collaboration in this space involve a variety of stakeholders, for instance, private organisations, formal private sector bodies (e.g. commercial businesses), informal private sector bodies (e.g. small entrepreneurs, micro-enterprises and individuals), non-governmental organisations (NGOs), and community-based organisations (CBOs) (Taylor, 1999; Visvanathan C and Tränkler, 2003). Some involve a 'participatory approach' that sees responsibility and benefits shared between the local authority and other stakeholders (Sang-Arun and Bengtsson, 2012). In addition, some implement community-based activities to maximise public participation in waste management (Duong, Dang and Trinh, 2014). However, there are partnerships directly between private investors and local citizens in waste-to-energy investments, given that this is one aspect of waste management that can be run with or without the involvement of the state (Forsyth, 2005).

(5) Organisation of Collaboration

27 percent of the literature contained findings that discussed the organisation of collaboration. According to Thai local government laws, there are 2 possible forms of collaboration that local governments there can engage in: municipal corporate and mixed corporate. A municipal corporate is a collaboration that takes place solely between municipalities. A mixed corporate is a collaboration involving local government and other government organisations or state enterprises (Sala, 2013). In practice, there are four possible types of networked management in the Thai local government context: the Consultative, Contracted, Decentralised, and Collaborative models. This delineation is derived along two dimensions: the extent to which information is shared, and the extent of civic involvement in local public affairs (Krueathep, 2007); Krueathep and Parisudhiyarn, 2007).

The Collaborative Model involves four possible forms of civic involvement in local affairs, ranging from a low to high degree of involvement: civic participation in the provision of information to local governments; civic participation in consultations; civic participation in the implementation and auditing of programmes; and civic self-mobilisation. First, civic participation in the provision of information to local governments may involve, for instance, civic participation in tax committees, the provision of a tax budget guide, and creating tax education initiatives. Second, civic participation in consultation may involve, for instance, the organising of a town hall meeting, or the administering of a household survey. Next, civic participation in the implementation and auditing of programmes may involve, for instance, inspecting public procurement contracts, and publicly monitoring local governance

performance in particular initiatives. Last, civic self-mobilisation may involve, for instance, the creation of civic forums (Krueathep, 2004).

In addition, there are two major types of control mechanism used to monitor network performance and the political responsiveness of Thai local governments involve in collaboration: output-based and citizen-based measures (Krueathep and Parisudhiyarn, 2007). However, the minority of Thai local governments still employ the Traditional Bureaucratic model when engaging in public management, which means that they are solo-riders of public service responsibilities (Krueathep, 2008). In other words, they are not involved in any form of collaboration.

Besides this, collaboration involving Thai local governments can be categorised along seven dimensions: type of model, the main information provider, the tentative goal, the actual the role of citizens, actual condition for citizens' activities, actual public space, and citizens' duties for appropriate policy in a local context (Yamawaki, Kittitornkool, Papan and Yamada, 2006).

When considering collaboration of Thai local governments in particular affairs, there are various possible models. For example, there are five potential models for Thai local government collaboration for educational management: collaboration as a juristic body such as a joint board or joint authorities, area-based collaboration, collective goal-based collaboration, division of labour-based collaboration, and capacity-based collaboration (Rukspollmuang, Sukontasap and Hongwityakorn, 2015). Furthermore, there are exclusive

findings from different affairs. For example, positioning local communities at the centre of housing management cooperation could help deliver maximum benefits, address specific needs and empower local communities (Bhatkal and Lucci, 2015).

In terms of collaboration for waste management, we can see examples where public-private partnerships are created to promote waste recycling as a part of a collaborative waste management strategy (Sang-Arun and Bengtsson, 2012). Moreover, there are two significant factors affecting waste management partnerships in Thailand and the Philippines: assurance mechanisms and transaction costs. Assurance mechanisms are contracts, laws, and expectations that ensure each side of a partnership will cooperate. Transaction costs are costs involved in interacting with partners; they usually include financial costs, time spent negotiating, and problems associated with misunderstandings. The best partnerships have the fewest transaction costs (Forsyth, 2005).

(6) Collaborative Capacities

27 percent of the literature contained findings that highlighted the importance of collaborative capacity. There are 4 types of capacity needed for collaboration in the Thai local government context mentioned in the literature: institutional capacity, educational capacity, training capacity, and cultural capacity. Institutional capacity involves capable personnel or skilled personnel (e.g. trained staff), capable resources (e.g. budgets, financial support from the central government), capable communication, and strategies and plans around solid waste management (Krueathep and Parisudhiyarn, 2007; Sang-Arun and Bengtsson, 2012; Guerrero, Maas and Hogland, 2013; Suttibak and Nitivattananon, 2014;

Mmereki, Baldwin and Li, 2016). A lack of this form of capacity can limit local governments' support for collaboration. For example, Khongsatjaviwat and Routray (2015) found that limited and insufficient grants allocated by central government, and low-levels of local taxes and fees collected by local governments, especially small local governments (e.g. SAOs), is a major limitation affecting the support that local governments offer for collaboration in their respective communities.

The second is educational capacity, which includes the training of municipal solid waste management personnel (Troschinetz and Mihelcic, 2009). The third type is training capacity; for instance, training intervention on waste management (Duong, Dang and Trinh, 2014). This capacity can come from various stakeholders involved in a collaboration. For example, non-governmental organisations (NGOs) can support local governments by offering training to encourage the more efficient management and allocation of resources, and access to their epistemic networks and funding (Balassiano, 2011). The final type of capacity is cultural capacity (Yukalang, Clarke and Ross, 2018); Chamchong (2016) argues that developing a collaborative culture is essential to sustaining collaboration.

(7) Explanations for Collaboration

21 percent of the literature contained findings that focused on explaining why collaboration took place. Explanations for collaboration by Thai local governments focus on two levels: national and local government. First, there were five explanations for collaboration amongst Thai local governments at the national level: decentralisation, devolution, participatory imperative, dealing with wicked problems, and applying the New Public governance

approach. To begin with, the decentralisation agenda encouraged national and provincial authorities to facilitate self-organised actions at the local level, and to move away from traditional modes of centralised planning and control (Atkinson and Vorratnchaiphan, 1996). Next, the devolution of resources and fiscal decision-making authority meant that local citizens were able to decide and prioritise public work expenditure in their own localities, and local citizens were transformed into active stakeholders in local government affairs (Sudhipongpracha and Wongpredee, 2015). Third, the participatory imperative forces central government to engage the wider public in the decision-making processes. As a result, various institutional arrangements involving local stakeholders have emerged since the 1990s at different administrative, geographic and socio-political levels to deal with public issues, for instance, water governance issues. These arrangements existed alongside local authorities (Neef, 2008).

Dealing with wicked problems is another explanation for the emergence of collaboration amongst Thai local governments, since it led to the engagement of civil society in the governance process, and there has been a shift away from hierarchical forms of governance to market-based forms and, later, to forms of networked governance (Taveekan, 2013). Furthermore, Thai local governments have applied the New Public governance approach. For example, Supromin and Choonhakhlai (2017) found that municipalities applied a mixture of three different types of public management approaches when providing public services for elderly people: the Traditional Public Administration Model, which meant that municipalities used bureaucratic rules and provided public services alone; the New Public Management Model, which encouraged municipalities to work with the private sector; and the New Public Governance Model, which encouraged municipalities to create partnerships

and networks involving all stakeholders to establish a centre and school that could bolster the quality of life of elderly people.

At the local government level, there were four factors that lay behind the emergence of collaboration amongst Thai local government: the difficulty of the programme or task, the capacity of the management, local political climate, and the socio-economic context (Krueathep, 2007). However, only the local political climate had an indirect effect on the emergence of collaboration (Krueathep, Riccucci and Suwanmala, 2008). Furthermore, large local governments proactively collaborated with partners because they had more capable personnel and resources, both of which could support collaboration. In contrast, small local governments had a greater urgency to collaborate, since they may not be able to perform all of their tasks alone because of their limited personnel and funding (Krueathep and Parisudhiyarn, 2007). Besides, collaboration amongst small local governments was more likely to emerge when it did not challenge the interests of local citizens and local councillors (Chamchong, 2016).

Nevertheless, there are also reasons why local governments do not wish to collaborate. Sudhipongpracha (2014) found that there were two main reasons why municipalities were reluctant to collaborate with non-governmental actors and other municipalities over the management of emergency situations: the authority to initiate inter-jurisdictional partnerships rested with the mayors, who did not perceive the need for inter-jurisdictional and multi-sectoral partnerships, and Thai municipal chief administrators were concerned with how to record shared costs and revenues from collaborative agreements with other

jurisdictions in their municipal budget and accounting documents. Doing things without the mayors' support or approval was likely to jeopardise the municipal chief administrators' job security.

(8) Stages of Collaboration

6 percent of the literature contained findings that focused on stages of collaboration. There are three possible stages of collaboration: that which started before formal collaboration, that which takes place after collaboration has been formed, and a combination of the two. First, when it comes to that which started prior to formal collaboration, the literature discusses pre-conditions to collaboration in the Thai context. For example, Hanghon and Rinthaisong (2015) argued that there were three stages involved in the collaboration over unofficial higher education management by Thai local governments: adjusting the mutual understanding between collaborative partners using 'standardisation' factors, such as guidelines, fostering collaboration using 'formalisation,' 'reciprocity' and 'intensity' factors, and an integration stage.

Next, when it comes to situations in which collaboration had already started, the literature discusses from where collaboration has already existed, but its characteristics will be adjusted regarding situation changes. For example, Sangthong and Rinthaisong (2015) discussed that there were three stages of collaboration for flood management amongst Thai local governments: the pre-impact phase, which involved collaboration directed at the preparation of tools, appliances and disaster warnings; the impact phase, which involved collaboration in community management, coordination and communication between

partners; and the post-impact phase, which involves collaboration around damage management, aid and recovery. The final form combines characteristics of the two that come before it by discussing both a pre-condition and an adjustment of collaboration by situations. For example, Chopyot (2016) argues that there are two stages involved in disaster management collaboration amongst Thai local governments: creating a memorandum of understanding (MOU) between nearby local governments in order to collaboratively form a Disaster Prevention and Mitigation Centre, and implementing pre-impact, during-impact and post-impact activities according to a disaster prevention and mitigation framework.

(9) Extent of Collaboration

Only 2 percent of the literature contained findings that focused on the extent of collaboration. The majority of Thai local governments adopted some form of collaborations when they implemented public programmes after the implementation of the devolution policy in 1999. In general, they have between one and five collaborative partners (Krueathep, 2008).

(10) Intensity of Collaboration

Another 2 percent of the literature contained findings that focused on the intensity of collaboration. There are four factors that are important here: standardisation, formalisation, reciprocity and intensity, with eight sub-factors, consisting of unit standardisation, definitional reciprocity, the amount of resources involved, structural formalisation, agreement formalisation, procedural standardisation, resource reciprocity and the frequency of interactions that are proposed to assess collaboration of Thai local governments. The more

unit standardisation or formalisation there is, the more intense the collaboration is. This theme will resonate with chapter two of this thesis, which touches upon ‘typologies of collaboration’.

1.2.4 Limitations in Research on Thai Local Government Collaboration

I have identified three types of limitations in the existing literature: limited generalisation, lack of clear definitions or explanations of key information, and bias. Some literature though did not have any major limitations (see Table 1.4).

Table 1.4: Limitations of the Literature

Limitation	Number (N)	Percent (%)
Limited ability to generalize	32	67
Lack of clear definition or explanation of key information	8	17
Bias	4	8
No or minor limitations	4	8
Total	**38**	**100**

The majority (67%) of the literature was limited in the extent to which the findings could be generalised. This is because they employed qualitative methods with very small sample sizes. Because of this, their conclusions lacked reliability, a key measure of the consistency or stability of a piece of research (Robson, 2011, p. 77). Next, the second most important limitation (in 17% of the literature), was a lack of clear definitions or a failure to explain key

information. For example, common shortcomings included a failure to clearly define indicators and key terms used in the study, the number of research participants who took part, or the research methods. Hence, the conclusions of these studies have limited validity, a measure of whether the conclusions reached are accurate and valid (Robson, 2011, p. 77).

The least frequent limitation (in 8% of the literature) was bias. The biases emanated from different causes, for example, the selection of respondents with particular characteristics, and unequal numbers in a study's experimental and control groups. However, a further 8% of the literature offered clear definitions and explanations of important terms, lacked bias, and had findings that were generalisable. All of these latter studies employed a mixed-methods design.

1.3 Thesis Aims, Research Questions and Thesis Structure

Having conducted the literature review, I am now in a position to discuss the thesis' aims, research question, and structure (see Table 1.5).

Table 1.5: Thesis Aims, Research Questions and Thesis Structure

Research questions	**Secondary questions**	**Data needed**	**Methods**	**Thesis chapter(s)**
1. What is the existing state of knowledge on Thai LAOs' involvement in collaborations?	-What research has been undertaken? -What are the main gaps?	-Empirical research on Thai LAOs' collaborations	-On-line searches for literature -Contact with key informants to identify relevant literature -Literature review	Chapter 1

2. What is the best way to conceptualise, collect and analyse data on Thai LAOs' collaborations for waste management?	-What concepts and theories can be used to analyse collaborations? -What frameworks are particularly useful for analysing collaborative capacities? -What should the research design look like?	-Literature on collaborations, especially as it relates to the public sector -Literature on collaborative capacities -Knowledge about research methods	-Literature review -Training in research designs and methods -Specialist advice on correlation analysis	Chapters 2-3

3. What is the existing state of Thai LAOs' collaborations for waste management	-What is the national policy context? -What are the extent, nature and outcome of collaborations across Thai LAOs? -How do individual LAOs manage their waste management collaborations?	-Qualitative data on national policies on waste management collaborations -Quantitative data on collaborations in a sample of general Thai LAOs -Qualitative data on collaborations in a sample of individual Thai LAOs	-Case study of national policies and agencies using interviews and a review of documents -Survey of a sample of Thai LAOs using postal and e-mail surveys, supplemented with interviews -Case studies of a sample of individual Thai LAOs using interviews and a review of documents	Chapters 4-8

4. How can we explain the forms and outcomes of collaborations by Thai LAOs?	-What is the origin of waste management collaborations amongst Thai LAOs? -How have these collaborations developed? -How important are collaborative capacities?	-Qualitative data on waste management problems mentioned in national policies on waste management -Quantitative data on local waste management problems -Quantitative data on collaborative capacities and collaborative outcomes -Qualitative data on local waste management problems -Qualitative data on collaborative capacities and collaborative outcomes	-Comparative analysis of waste management problems mentioned in national policies and local waste management problems in practice -Analysis of survey data including correlation analysis of relationships between collaborative capacities and collaborative outcomes -Thematic analysis of case studies on relationships between collaborative capacities and collaborative outcomes	Chapters 4-9

5. What are the implications for policy and practice by Thai LAOs and other agencies	-How can Thai LAOs develop their collaborative capacities to achieve better waste management collaboration outcomes	-Quantitative data on recommendations for Thai LAOs who have already collaborated around waste management -Qualitative data on recommendations for Thai LAOs who have already collaborated around waste management	-Thematic analysis of survey data on recommendations for Thai LAOs who have already collaborated around waste management -Thematic analysis of case studies on recommendations for Thai LAOs who have already collaborated around waste management	Chapters 6-9

1.3.1 Thesis Aims

This thesis aims to enhance our understanding of collaborations amongst Thai LAOs, particularly collaboration around waste management, and the collaborative capacities of Thai LAOs, a context that, as of now, has not been subject to academic investigation. Moreover, in response to the three major gaps in the existing literature highlighted above (limited generalisation, a failure to clearly define or explain key information, and bias, the thesis aims to overcome these gaps by employing a mixed methods approach, which allows for the clear definition and explanation of key information, and avoids the risk of bias to the greatest extent possible given the limited time and resources of the researcher. In the final

part of this thesis, I put forward recommendations to develop the collaborative capacities of Thai LAOs. This will be a contribution to both policy and the literature on the management of collaboration.

1.3.2 Research Questions

This thesis asks five research question:

(1) What is the existing state of knowledge on Thai LAOs' involvement in collaborations?
In order to clarify this research question, two secondary questions are asked: what research has been undertaken; and what are the main gaps in that research. The data needed to answer these questions comes from empirical data on Thai LAOs' collaborations. The methods that are employed to source this data include an on-line search of relevant literature, literature review, and contact with key informants – i.e. - experts in waste management and Thai local government.

(2) What is the best way to conceptualise, collect, and analyse data on Thai LAOs' collaborations for waste management?
There are three secondary questions to clarify this research question: what concepts and theories can be used to analyse these collaborations; what frameworks are particularly useful for analysing collaborative capacities; and what should the research design of this research look like. The data needed to answer these questions comes from literature on collaborations amongst Thai LAOs, especially as it relates to the public sector, literature on collaborative capacities, and knowledge about research methods. The methods that are undertaken consist

of a literature review, training in research design and methods, and receiving specialist advice on correlation analysis.

(3) What is the existing state of Thai LAOs' collaborations for waste management?

In order to clarify this research question, three secondary questions are asked: what is the national policy context surrounding collaborations for waste management; what are the extent, nature, and outcome of collaborations across Thai LAOs; and how do individual LAOs manage their waste management collaborations. The data needed to answer these questions stem from qualitative data on national policies governing waste management collaborations, quantitative data on collaborations from a sample of typical Thai LAOs from across the country, and qualitative data on collaborations from a sample of individual Thai LAOs that have successfully collaborated in the management of waste.

The methods that are used consist of a case study of national policies on waste management collaborations, which relied on semi-structured interviews and a review of official documents, a survey of a sample of Thai LAOs from across the country using self-completed questionnaires sent by post and e-mail and supplemented by telephone interviews, and case studies of a sample of individual Thai LAOs that have successfully engaged in waste management collaborations, which drew upon semi-structured interviews and a review of official documents.

(4) How can we explain the forms and outcomes of collaborations by Thai LAOs?

There are three secondary questions used to clarify this research question: what is the origin of waste management collaborations amongst Thai LAOs; how have these collaborations

developed; and how important are collaborative capacities. The data needed to answer these questions comes from a qualitative review of waste management problems mentioned in national policies on waste management, quantitative and qualitative data on local waste management problems, and quantitative and qualitative data on the collaborative capacities and outcomes of Thai LAOs' waste management collaborations. Analysis consisted of a comparative analysis of waste management problems mentioned in national policies and seen in local waste management in practice, a correlation analysis of relationships between collaborative capacities and the outcomes of collaborations, and a thematic analysis of case studies on relationships between collaborative capacities and outcomes.

(5) What are the implications for the policy and practice in Thai LAOs and other agencies? In order to qualify this final research question, a secondary question is asked: how can Thai LAOs develop their collaborative capacities to achieve better outcomes for waste management collaborations. Quantitative and qualitative data on recommendations for Thai LAOs who have already collaborated around waste management is needed to answer this question. Thematic analyses is used to understand the survey and case study data and to develop recommendations for Thai LAOs who have already collaborated in the area of waste management.

1.3.3 Thesis Structure

This thesis is composed of nine chapters:

Chapter 1- Introduction

This chapter examines the existing state of knowledge on Thai LAOs' involvement in collaborations. It begins with a discussion on why collaboration is an important issue for Thai local government. Then it presents a literature review of research on Thai local government collaboration in order to identify the research designs used, the topics that the literature focuses on, the main conclusions it reaches, and its limitations. After that, the thesis aims, research questions and structure are outlined. The secondary research questions, data needed, and methods are also discussed.

Chapter 2 - Concepts and theories of collaboration

This chapter attempts to find the best way to conceptualise data on Thai LAOs' collaborations for waste management. It reviews the literature on collaboration within organisations, focusing on five themes: what is collaboration; why has collaboration become important for local government; what forms can collaboration take; what are the main challenges to achieving successful collaboration; and what are the limitations and problems associated with collaboration. This will inform the development of the conceptual framework.

Chapter 3 - Research design and methods

This chapter discusses best way to collect and analyse the data on Thai LAOs' collaborations in the area of waste management. It focuses on the concept of collaborative capacity, which is used frequently during the empirical stage of the research and shows how the research is designed to gather and analyse data and draw conclusions in relation to the research questions. It discusses the principle of research design, followed by the conceptual

frameworks on collaborative capacity and their operationalisation. Then it discusses research strategies, types of research design, sampling frames, sampling, samples, research methods and data analyses.

Chapter 4 - Results of the survey

This chapter examines the existing state of Thai LAOs' collaborations in waste management and explains various collaborative capacities and how they affect the outcomes of collaboration. It draws on the survey data, which can be categorised into four groups: characteristics of collaboration for waste management involving LAOs, the collaborative capacities of LAOs, the outcomes of these collaborations, and the relationship between collaborative capacity and the outcomes of collaboration. The first three groups are analysed using descriptive statistics, and the last group is analysed using inferential statistics, in particular a correlation analysis of the relationships between collaborative capacities and the outcomes of collaboration.

Chapter 5 - National policy context of collaborations for waste management amongst Thai LAOs

This chapter provides data on national policies, core agencies and budgeting processes used in waste management, how they are amenable to collaboration, and potential forms of collaborations available for Thai LAOs given the extant policy context and the existing state of Thai LAOs' collaborations in the area of waste management.

Chapter 6 - Collaboration for waste management in the Bangkok Metropolitan Administration (BMA)

This chapter examines how the Bangkok Metropolitan Administration (BMA) manages their waste management collaboration. It presents an overview of the Bangkok Metropolitan Administration (BMA), their waste management problems, the creation of collaboration for waste management, the development of collaboration for waste management (from past to present), other collaborative organisations, the management of waste management collaboration, collaborative capacities, problem solving and working relationships as outcomes of collaboration, other benefits resulting from collaboration, and recommendations for how to increase the effectiveness of such collaboration, based upon the opinions of the key actors involve in various waste management collaborations.

Chapter 7 - Collaboration for waste management in the Phitsanulok City Municipality

This chapter examines how Phitsanulok City Municipality manages their waste management collaboration. It presents an overview of Phitsanulok City Municipality, their waste management problems, the creation of collaboration, other collaborative organisations, managing the collaboration, collaborative capacities, problem solving and working relationships as an outcome of the collaboration, and other benefits associated with such collaboration. It also provides recommendations for how to make waste management collaboration more effective, based on the opinions of the key actors involved in the municipality's waste management collaboration.

Chapter 8 - Collaboration for waste management in the Khon Kaen City Municipality

This chapter examines how Khon Khaen City Municipality manages their waste management collaboration. It presents an overview of Khon Kaen City Municipality, their waste management problems, the creation of collaboration, other collaborative organisations, managing the collaboration, collaborative capacities, problem solving and working relationships as an outcome of the collaboration, and other benefits associated with such collaboration. It also provides recommendations for how to make waste management collaboration more effective, based on the opinions of the key actors involved in the municipality's waste management collaboration.

Chapter 9 - Conclusion

The final chapter explains the form, collaborative capacities and outcomes of collaborations involving Thai LAOs. It also discusses the policy and practice implications for Thai LAOs and other related agencies. It presents a comparative analysis of the empirical data, lays out recommendations for policy and management, and discusses the lessons learnt, limitations of the research, and recommendations for future research.

CHAPTER 2

CONCEPTS AND THEORIES OF COLLABORATION

Introduction

The idea of organisations working together has become widespread in the public, private, and not-for-profit literatures. As a result, their substantial literatures on this phenomenon and a variety of concepts are used to describe it. For example, collaboration, network, and partnership. This chapter aims to review those literatures in order to develop the conceptual frameworks of the research. It is divided into the following five sections:

What is collaboration?

Why has collaboration become important for local government?

What forms can collaboration take?

What are the main challenges in achieving successful collaboration?

What are the consequential limitations and problems of collaboration?

2.1 What is Collaboration?

2.1.1 Definitions of Collaboration from the Literature

Collaboration is a broad term that literature gives different definitions of. Some define it in just one dimension. For example, Kamensky and Burlin (2004, p. 8) define that:

“Collaboration occurs when people from different organisations produce something together through joint effort, resources and decision making, and share ownership of the final product or service.” The focus of this definition is on producing or implementing something. Alternatively, some define it in multiple dimensions. For example, Thomson, Perry and Miller (2009, p. 25) define that, “Collaboration is a process in which autonomous or semi-autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together, it is a process involving shared norms and mutually beneficial interactions.” Collaboration regarding to this definition is composed of five dimensions as follows (Thomson, Perry and Miller, 2009, pp. 25-28):

(1) Governance

In the governance dimension, organisations who seek to collaborate have to understand how to make collective decisions about the rules that will govern their own behaviours and relationships within their collaboration.

(2) Administration

In the administration dimension, some administrative structures are created to focus on implementations and management of those implementations to achieve goals of a collaboration.

(3) Mutuality

In the mutuality dimension, organisations that collaborate must experience mutually beneficial interdependencies based on either self-interests or shared interests. However, they are usually based on the latter: for instance, the moral imperative of environmental degradation or a humanitarian crisis.

(4) Reciprocity

In the reciprocity dimension, collaborating organisations generally show what Thomson, Perry and Miller called an 'I-will-if-you-will' mentality which means actors will take actions based on the reciprocal obligations they perceive. For example, collaborating organisations may be willing to be responsible for disproportionate costs at first because they expect their partners to equalise the distribution of costs and benefits over time out of a sense of duty.

(5) Organisational Autonomy

In the organisational autonomy dimension, collaborating organisations have a dual identity composed of their distinct identities and organisational authorities, separate from a collaborative identity. This ignores situations where they create a separate entity to undertake the tasks of a collaboration on their behalf. I will discuss this issue later, in the 'level of collaboration' section.

There are literatures which optimistically describe collaboration. For example, Vigoda (2002, p. 529) explains the nature of collaboration as negotiation, participation, cooperation, free and unlimited flow of information, innovation, agreements based on compromise and mutual understanding, and a more equitable distribution and redistribution of power and

resources. In addition, Carnwell and Carson (2005, p. 11) summarise the attributes of collaboration as intellectual and co-operative endeavour, knowledge and expertise more important than role or title, joint venture, team working, participation in planning and decision making, non-hierarchical relationship, sharing of expertise, willingness to work together towards an agreed purpose, trust and respect in collaborators, highly connected network, and low expectation of reciprocation. These literatures show that collaborating organisations are likely to have shared resources, mutual agreements and good relationships between partners. To analyse how local administrative organisations in Thailand work together with other organisations on waste management, I use the term 'collaboration' because it is a broad term which allows ample room to consider how they actually work together. Moreover, collaboration can be seen through multiple dimensions. These dimensions, especially according to the work of Thomson, Perry and Miller, will be used to analyse collaborations for waste management of Thai local authorities in terms of the structure, governance or management, and their mutual actions of collaboration.

2.1.2 Levels of Collaboration

Because my assumption is that collaborations can vary due to their characteristics, it is important to conceptualise collaboration as the element that can occur at various levels and forms based on their characteristics. In this section, collaboration will be categorised on different levels based on their activities. Norris-Tirrell and Clay (2010, p. 4) state that, "Collaborative activity falls on a continuum that integrates the perceived significance of the problem that is on the table (or the stake of the issues being considered) with an assessment of the perceived expectations about decision-making processes (or the need for

inclusiveness).” This continuum ranges from the silo-based activities at one end to the strategic collaboration at another end as presented in Figure 2.1 (Norris-Tirrell and Clay, 2010, pp. 4-5):

Figure 2.1: The Continuum of Collaborative Activity

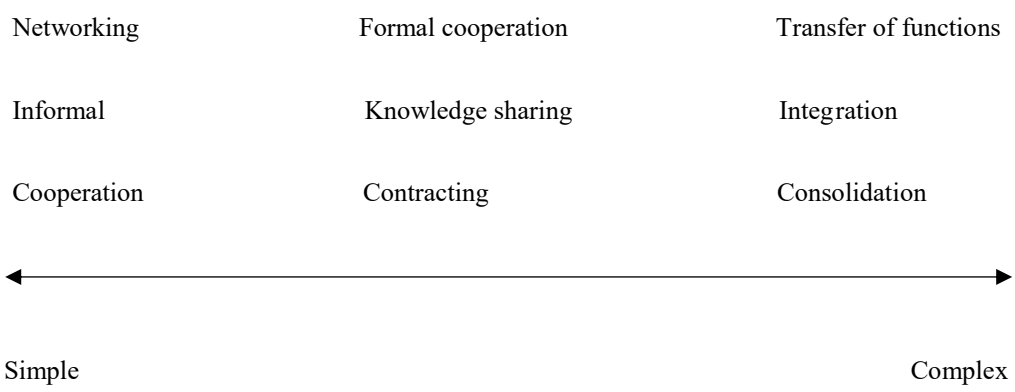
(Based on Figure 1.1 by Norris-Tirrell and Clay, 2010, p. 5)

They explain that, at the silo-based activities end, issues are solely and appropriately placed within one agency. These issues require a minimal level of collaboration which is a short-term collaboration with simple purposes. However, the collaborative activities will move to the right of the collaborative continuum, towards the strategic collaboration end, when boundary-spanning functions increase in magnitude. In strategic collaboration, the issues are interconnected and involve different policy arenas and have high investment on the part of other agencies, sectors, and interests. Therefore, a strategic approach is required to form a collaboration. Towards the left-hand end of the continuum, there tend to be ad hoc decisions about collaboration. That is, collaborations come to work together with limited information about purposes, structures, processes and outcomes of the collaboration. When a collaboration has high political stakes and serious consequences, or crosses multiple policy

and sector boundaries, it becomes more strategic in order to advance public service practices and reach long-term solutions.

After that, O'Donnell applied this concept to create his collaboration continuum as presented in Figure 2.2:

Figure 2.2: The Collaboration Continuum



(Based on Figure 1, O'Donnell, 2012, p. 6)

O'Donnell explains that the simplest level of collaboration is networking which consists of an informal cooperation. The middle stage is formal cooperation which consists of knowledge sharing and contracting. The most complex level is transfer of functions and consists of integration and consolidation (O Donnell, 2012; 6). Kamensky and Burlin (2004; pp. 8, 10, 12) also explain collaboration as a continuum ranging from network at one end towards partnership at the other end. Networks consist of an informal relationship with

voluntary obligations in place, where partnerships tend to be a more formal participation of joint ventures with binding obligations for action. Furthermore, networks tend to be time consuming to develop and fragile to maintain due to their informal nature. Since partnerships tend to be more defined than networks, they may experience more difficulties in adapting to a chaotic environment. It can be concluded that collaboration can reach a higher level when it has more formal and complex activities over a longer period of time. The next section will present other terms that can be used in discussing the phenomenon of organisations working together.

2.1.3 Other Terms Used in Discussing the Phenomenon of Organisations Working Together

(1) Boundary Spanning

In public management literature, boundary spanning is explained through the concept of boundary spanning roles. Colignon (1987) states that the boundary spanning role is one strategy which has been used when discussing the permeability of an organisation. The degree of permeability of organisational boundaries refers to a number of interactions between an organisation and its environment. Organisations with a high degree of permeability are organisations that have many interactions with environments because their organisational systems are quite open. In contrast, organisations with a lower degree of boundary permeability have few interactions with environments since their organisational systems are less open (p. 170). Furthermore, Aldrich and Herker (1977) explain that boundary spanning roles have two major functions: information processing and external representation functions. An organisation receives information from external sources

through boundary spanning roles. Information processing is a dual function consisting of filtering and facilitating information transmittal. The boundary spanning roles filter the relevant information in order to avoid an information overload problem. They selectively deal with the information by consolidating, delaying or storing it. In the final process, they will summarise the information directly to the units of an organisation that has a demand for it (pp. 218-219).

External representation, in this context, refers to an organisation's response to an environmental influence. Boundary spanning roles link an organisation to environmental elements by buffering, moderating or influencing the environment. They can help an organisation adapt to environmental constraints and contingencies through a compromised arrangement consisting of resource acquisition and disposal, political legitimacy and hegemony, and social legitimacy and organisational image. First, boundary spanning roles regarding resource acquisition and disposal are supposed to reflect policy decisions in line functions. Next, boundary spanning roles concerned with an organisation's political legitimacy or hegemony both represent an organisation and mediate between one organisation and others. Mediation, in the context of boundary spanning roles, refers to negotiation resulting in the power of one organisation in relation to other organisations. In addition, they can help maintain an organisation's legitimacy by providing specially adapted information to important client groups. The third external representation function of boundary spanning roles is linking an organisation to target groups by making them feel that an organisation is representing their interests. Therefore, this function requires an organisation to recruit members of the target groups, or persons who regularly communicate with the target groups (Aldrich and Herker, 1977, pp. 219-221).

It can be seen that the concept of boundary spanning roles shows relationships between an organisation and its environment. However, this concept is also relevant to a collaboration. In relation to a collaboration, boundary spanning roles link a focal organisation with a network of other organisations for goal attainment (Colignon, 1987, pp. 170-171). This concept is important because it helps explain how Thai administrative organisations link themselves with other organisations in their collaborations for waste management specifically through their boundary spanners. Ekkerink (2008) describes a boundary spanner as a key person who filters the information that is coming into the organisation from the external environment and going out from the internal environment. This person is operating at the boundaries of an organisation (p. 4). They view a boundary spanner on two levels of boundary spanning roles: micro and macro levels. First, the micro or personal level is a level of boundary spanning roles from the perspective of a person who performs the boundary spanning roles. At this level, a boundary spanner is one key person of an organisation that participates in internal and external networks. The second level is a macro or organisational level, a level of boundary spanning roles from an organisation's perspective. A boundary spanner at this level is an organisation's staff member who is responsible for extending the boundaries of an organisation and evolving an inter-relationship between an organisation and the environment (pp. 4-10). A boundary spanner adds one more function to the major functions of the boundary spanning roles according to Aldrich and Herker (1977). This function is uncertainty reduction by gathering relevant information through inter-organisational communications (p. 5). As a result, the major functions of boundary spanning roles consist of information processing, external representation and uncertainty reduction.

Although the description of a boundary spanner given by Ekkerink mentions the environment as a key basis, his view on a boundary spanner at different levels of boundary spanning roles also mentions the circumstance that an organisation participates in networks or collaborations. Ansett (2005) is another scholar who defines a boundary spanner in terms of relations to both the collaboration and the environment of an organisation. He states that a boundary spanner is a staff member who represents an organisation in building relationships, identifying threats and opportunities, and embedding insights and learning from the external environment back into the organisation. Moreover, in the context of stakeholder engagement, a boundary spanner of an organisation might have an opportunity to meet boundary spanners of other sectors. They will bring their organisations closer in order to address each other's needs and find a potential to create a collaboration (pp. 36-37).

In terms of building sustainable relationships between members of collaborative organisations, Williams (2002) explains that it requires a boundary spanner to have the following factors. First, a boundary spanner should have good communication and listening skills. A boundary spanner should be aware of the appropriate choice of language to be used in a collaboration because highly professional languages or jargons can undermine, mislead or offend other members of a collaboration. Moreover, since communication is a two-way process. Williams considers listening just as important as expressing the information. Therefore, a boundary spanner should be an active listener who can express willingness and openness to other members. Next, a boundary spanner should be able to handle personal relationships between members of a collaboration. Apart from the formal working relationships between members of a collaboration, the personal relationships are also important. Therefore, a boundary spanner should understand and empathise with other

members. Furthermore, a boundary spanner should be able to manage conflicts whenever there are disagreements in the relationships. Finally, a boundary spanner should have desirable personality traits such as respect, honesty, openness, tolerance, approachability and reliability. In brief, they should have an easy and inviting personality (pp. 115-116).

Ansett also points out other abilities that can help a boundary spanner to be successful in their boundary spanning roles. These abilities include effectively synthesising information, assessing potential opportunities and risks associated with a potential collaboration of organisations, translating information from the external environment to give back to an organisation, encouraging internal staff, creating a strategy for collaborative implementations, having emotional maturity and integrity, and having good soft skills or social skills when managing a collaboration between an organisation and multiple sectors (Ansett, 2005, pp. 40-41). These traits empower the information processing and external representation functions of the boundary spanning roles. In addition to this, Booz and Lewis (1997) suggest how a boundary spanner should react when facing uncertainty from other organisations' representatives which is relevant to the uncertainty reduction function. There are two kinds of uncertainty that occur during an interaction: cognitive and behavioural uncertainty. First, to deal with cognitive uncertainty, a boundary spanner should be aware of his/her own and others' beliefs or attitudes. Next, a boundary spanner should be prepared to have appropriate reactions towards other representatives' behaviours since their initial meetings. The more experience a boundary spanner gets from interacting with other organisations' representatives, the more he/she is prepared for encountering uncertainty (p. 38). The concept of boundary spanner is related to the section about social collaborative capacities of this thesis. It will be contextualised later in the chapter on conceptual

frameworks and will help to explain and analyse the abilities of staff members of Thai local administrative organisations who worked with representatives of multiple sectors in their collaborations for waste management, and their relation to the success of these collaborations in the chapters on case studies' empirical data.

(2) Network

Another term that has been used is network. The uses of this term in the literature related to public management can be separated into an international and a national level. On an international level, for example, Kamarck (2003) explains that 'network' has been used to describe emerging relationships between states. As the economy has become global, the need for global governance measures has increased (p. 110). On a national level, Agranoff (2007) states that public and non-public organisations network for public purposes such as sharing information or matching services (pp. 1-2). It can be seen that this term is used to refer to an action made by organisations. In addition, this literature was developed based on the perspectives of public managers who work across the boundaries of their organisations (p. 2). He also argues that networking has become part of the job of public managers because working across organisations can provide a convergence of forces including life in an information society, the existence of multiple organisations that make and implement policies, and a variety of resources to deal with difficult problems experienced by the government (p. 2; p. 23). From a public policy aspect, the term network has been used when the government chooses to implement policy by using its power to create, contract and fund a collaboration between the government and non-governmental organisations. This can imply the diminished role of the traditional bureaucracy in the government (Kamarck, 2003, 110).

(3) Partnership

Partnership has become a fashionable solution in public management reform. It has moved away from the debates on the state versus the market and has pointed out that neither the state nor the market alone can provide adequate solutions to public service management problems. Instead, these problems require efforts of both public and private sectors to work together in the form of partnership. The outstanding characteristic of partnership from this perspective is that it brings in business management methods, models and expertise without becoming privatised. For example, there is the public-private partnership where public and private organisations work together and are often contract-based. However, it is not just about the government and the private sector collaboration. In fact, partnership may involve different kinds of non-governmental organisations such as trade unions, trade associations, community groups and NGOs. The relationships between partners in a partnership are often equal and voluntary. Moreover, consultation and consensus are the preferred means for decision making within a partnership (Metcalfe and Lapenta, 2014, pp. 52-54).

(4) Co-Production

Co-production is the term that is theoretically rooted in public management and service management theories. From a public management perspective, the origin of this concept is from the literature of Ostrom in 1972 which mentions that public service organisations depend upon communities for policy implementation and service delivery. From a service management perspective, its premise is that co-production can occur whether service users choose or do not choose to co-produce, whether they are aware of it or not since they cannot have public service delivery without co-production (Osborne, Radnor and Strokosch, 2016, pp. 640-641). Co-production refers to the voluntary or involuntary involvement of public

service users in designing, evaluating or management delivery of public services. In addition, it is linked to the co-creation of values both for the public service users and the societies (Osborne, Radnor and Strokosch, 2016, p. 640; p. 644). Therefore, co-production is close to the new governance model of public service provision where public officials play roles as directors or mediators while citizens are co-producers who bring in their knowledge, resources, assets or capabilities for creating more public values (Sicilia et al., 2016, pp. 11-12; Moore, 1995).

These alternative terms to explain the ways organisations are working together have more particular meanings than the term collaboration. I am unable to select only one of them to describe the local administrative organisations in Thailand working together for waste management, because their different meanings are too particular. However, in some literature these terms are used interchangeably with collaboration. Therefore, this thesis uses the generic term 'collaboration' to refer to the phenomenon of organisations or groups working together to solve common problems.

2.2 Why Has Collaboration Become Important for Local Government?

The growth of collaboration can be explained in a number of ways. Here I focus on two of the most important ones: the necessity to solve wicked problems and the impact of the Public Value approach.

2.2.1 Necessity to Solve Wicked Problems

The term wicked problem was first mentioned in an article of Churchman (1967, p. B-141), he claimed that it was suggested by Host Rittel, a Professor of the University of California, to refer to a social system problem which is ill-formulated, where the information is confusing, there are many clients and decision makers with conflicting values, and the consequences of it in the social system are confusing. After that, wicked problem was systematically defined in an article of Rittel and Webber (1973, pp. 155-165) by comparing it with a tame problem for several aspects. First, they need different knowledge bases to deal with. A tame problem needs to be dealt with by science whereas a wicked problem needs to be dealt with by a social policy. Furthermore, a tame problem itself is clear, and its solution can be clearly defined and observed. In contrast, a wicked problem has no definitive description and no objective definition. As a result, thereare no solutions to this problem in terms of a definitive and objective solution. To solve a tame problem, there is a possible set of information that any problem solver needs for understanding and solving the problem. However, this is not applicable with a wicked problem because a problem solver needs to develop an exhaustive inventory of all conceivable solutions. In addition, there is no true or false solution of a wicked problem. Instead, a solution will be assessed by the satisfaction of a problem solver. Finally, solutions of a tame problem can be generalised to other similar problems because there are certain characteristics to define similarities among tame problems. However, there are no explicit characteristics to define similarities among wicked problems. Therefore, solutions to one wicked problem are not likely to be effective on other wicked problems. It can be implied that these solutions need to be contextualised before they can be applied to others.

It can be concluded that a wicked problem based on the definition of Rittel and Webber is recognised as an unclear and complex problem which needs a complicated process to be solved. This definition of a wicked problem has influenced the later literature on defining a wicked problem. For example, the Australian Public Service Commission (APSC, 2012) defines a wicked problem as a very complex problem which cannot be understood and responded to by only one organisation. To find out its causes and the best solution to tackle it, disagreements among related people often happen. Robinson (2015) also defines a wicked problem in similar characteristics. That is, a wicked problem cannot be addressed through single interventions and technical fixes administered by individual public agencies working alone. However, Robinson added a more outstanding characteristic of a wicked problem; that is, it cuts across policy arenas and political boundaries. Thus, a wicked problem can emerge within other policy areas, not just in a social policy. It is also possible to be confronted by different levels of governments. Examples of a wicked problem include climate change, obesity, indigenous disadvantage and land degradation (APSC, 2012). The empirical focus of the thesis is on waste management in Thailand, and this is a wicked problem.

Roberts (2000) identifies three possible strategies for tackling a wicked problem (cited in Robinson, 2015) as follows: The first strategy is authoritative strategy. This strategy is to give a wicked problem to a group or an individual of stakeholders to be responsible for a problem-solving process when others agree to accept its decisions. The identification of this responsible group is based on its knowledge and expertise, and an organisational position in the hierarchy of a coercive power among stakeholders. The next strategy is the competitive strategy. This strategy is central to the search for power, influence and market

share. Stakeholders generally assume a win-lose outcome of a competition among them for dealing with a wicked problem. The last strategy is the collaborative strategy. This strategy is supported by many literatures as being the most effective strategy to deal with a wicked problem which involves many stakeholders with dispersed power. It uses a collaboration to solve a wicked problem. The core of the collaboration is making stakeholders have a win-win view of collective problem solving. Moreover, solutions derived from this strategy involve making behaviours of stakeholders or citizens change sustainably.

For example, Weber and Khademian (2008, pp. 336-337) state three characteristics of a wicked problem that are the reason why networking is more suitable for managing a wicked problem than other approaches. First, a wicked problem is unstructured, so its causes and effects are difficult to identify and model, and this characteristic leads to a fluid problem-solving process. This requires an effort to draw on a broad range of knowledge from many stakeholders. Second, a wicked problem is cross-cutting which means it can affect different structures within one organisation or across organisations. Moreover, it is connected to other problems related to conflicting values, and generates uncertainty. Stakeholders of these problems are multiple stakeholders with diverse perspectives who may engage or leave, depending on how the problem affects themselves, their organisations or their groups. It requires effort to develop new knowledge which is applicable to the complexity of the problem and will be served as a premise for cooperation of the stakeholders. Finally, a wicked problem is relentless - it does not have a finish line. This means it requires an effort to continuously transfer, receive and integrate knowledge among stakeholders for a long-term problem-solving capacity.

In addition, the (APSC) (2012) explains three major reasons to support that collaboration is the most effective way to tackle a wicked problem. First, social complexity which is often the most difficult part in tackling a wicked problem, requires an organisation to work across dispersed stakeholders. Moreover, it is important to engage all stakeholders in the search for solutions of a wicked problem since it is often imperfectly understood by an individual organisation. Therefore, it is crucial to discuss it by all relevant stakeholders to ensure a full understanding of the stakeholders on the complexity of that problem. In the case that a solution of a wicked problem requires changes in the way people behave, people behaviours are more likely to change when the problem is understood, discussed and owned by the people whose behaviours are targeted for that change. Finally, an organisation may have more impacts on the policy outcomes by using their limited resources to engage, involve and change the behaviour of citizens and other groups than by only concentrating on traditional policy tools and service delivery. These ways to tackle a wicked problem can be created through a collaboration.

Furthermore, Denning illustrates six concrete practices that a collaboration is essential for resolving a wicked problem (which he calls a mess) as follows (Denning, 2009, pp. 720-721): The first practice is ‘declare.’ An organisation needs to declare what a wicked problem is that it needs to manage. The declaration will mobilise other stakeholders who are potential to join a collaboration to deal with that problem. Another practice is ‘learn.’ An organisation should make itself a student of a wicked problem to learn everything about the wicked problem as much as it can, then become an expert on that wicked problem. The third practice is ‘blend.’ Because innovations for resolving a wicked problem of an organisation can be resisted by other stakeholders, an organisation must use politics and media to make people

involved and give their consensus to those innovations. The next practice is 'question' the paradigm. According to Denning, paradigm is the belief system in which all people are operating. An existence of a wicked problem proves that the current paradigm cannot resolve the problem. For this reason, an organisation needs to identify assumptions in the paradigm and find out the problematic ones. Moreover, combining multiple perspectives of stakeholders is the way to think out of the current paradigm.

'We' is another necessary practice. An organisation needs to bring representatives of stakeholders who have different views and interests and are willing to talk together. After that, an organisation must facilitate them to have solidarity by supporting them to create new observers of the wicked problem, and new solutions to that problem. As a result, the representatives are likely to have a collective view which is different from an individual view. Thus, they may find a new perspective for dealing with the wicked problem together. The final practice required is 'lead.' It means that an organisation steps up to lead the change. If an organisation cannot do it, it needs to find another stakeholder to do it. The primary works of the leader of a collaboration for resolving a wicked problem consist of encouraging stakeholders to question and learn, facilitating a collaboration and manage a large-scale coordination. These practices will be presented through the empirical data of the chapters on results of the study of this thesis later.

2.2.2 Impacts of the Public Value Approach

Another factor that leads to the growth of collaboration in public management is the Public Value paradigm. The concept of public value was introduced when Moore (1994, p. 296)

stated that the aim of public managers was to create public value. He also proposed four particular ideas to guide managerial works of the public sector, and to define and measure the public value as follows (Moore, 1994, pp. 297-302): The first idea is that managers should achieve their mandated purposes as efficiently and effectively as possible. This idea is based on the Wilsonian tradition that separates public policy from public management. Moreover, elected representatives are responsible for setting goals and objectives of public management whereas civil servants are responsible for designing the most efficient means for achieving the desired results of those goals and objectives. As a result, for public value, elected representatives are responsible for defining public value as the achievement of political mandates when public managers are responsible for developing ways to achieve the politically mandated purposes.

The second idea is the idea that professional standards can set benchmarks for public sector production. Public managers often rely on the knowledge and experience of experts and professionals in the fields for which they are responsible. Therefore, they will consult experts or professionals in the domain of the public value they want to define. The next one is the idea that public value can be captured through analytic techniques, for instance, a programme evaluation and a cost-effectiveness analysis. These techniques are specifically developed by different kinds of experts such as the programme evaluation developed by statisticians, the cost-effectiveness analysis developed by engineers and operational researchers, and the benefit-cost analysis developed by economists. These techniques were first used to measure the performance of the government and the value of governmental organisations in the United States in the late 1960s. However, these techniques were difficult

to use because their costs were high; their results came late in the decision-making cycle, and they could convince people in political discussions less than the advocates had expected.

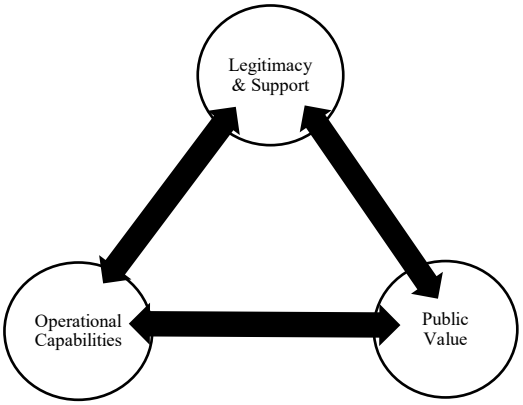
In the view of governmental evaluation practitioners, the correct way to define the value of a government programme is to identify the impact that those programmes have on individuals who are directly affected by the programmes, by valuing the effects in the ways the affected individuals will value them, and valuing the programmes by those affected individuals. Nevertheless, it is difficult to make accurate calculations of those effects and individual evaluations. As a result, the evaluators are forced to employ the programme evaluation and the cost-effective analysis techniques for a practical reason.

The final idea is the idea that public value can be measured in the satisfaction of stakeholders and customers of governmental enterprises. In this idea, the goals of public management are that public managers should try to satisfy stakeholders or customers of governmental programmes. According to Moore (1994), there are concepts where the public value concept lies. The first concept is stakeholder. It is a concept that focuses the attention of public managers on anyone who has stakes within the extent of public organisations' operations such as staff, political representatives, advocates and citizens. Moore argues that it is important to consider all stakeholders' interests and accommodate them but the overall purposes of public organisations that guide their operations should be established by citizens and their elected representatives. These goals of public management are the tools used to justify the expenditure of public resources. The next concept mentioned by Moore is the concept of customer service. When people think about customers of governmental

programmes, they generally think of individuals who government organisations meet at their business end. In other words, those who receive public service from the government. He concludes that the goal of public managers is to think that public values lie in the satisfaction of individuals who receive governmental programmes or encounters with the government, and to make the government more service-orientated.

After that, Moore and Khagram (2004, pp. 2-3) developed a strategic triangle, a diagram which focuses the attention of public managers on three complex issues that they either have to consider before or while committing themselves and their organisations to any specific plan. The first issue is public value. Public managers must consider the important public value that their organisation wants to create. The second issue is the source of legitimacy and support. Public managers must consider the source that will authorise their organisation to take action as well as the source that will provide resources for creating that public value. The final one is operational capabilities. They must consider their organisation's operational capabilities, such as new investment and innovation creation capabilities, that their organisation will either rely on or need to develop in order to deliver the desired results regarding the public value they created as presented in Figure 2.3.

Figure 2.3: Strategic Triangle



(Based on Moore and Khagram, 2004, p. 3)

Alford and O'Flynn then enlarged the explanation on public value in the strategic triangle of Moore and Khagram (2004). They explained that public value proposed by public managers focuses on three issues as follows (Alford and O'Flynn, 2009, pp. 175-176): The first issue is a wider range of value than public goods. Public value includes public goods (i.e. products and services produced by public organisations) but it entails a wider range of things including institutional arrangements (e.g. the rule of law, maintenance of order and mechanisms for the protection of property rights and enforcement of contracts), valued by citizens, that enable markets to operate and societal orders to function when there are market failures (i.e. situations where market mechanisms cannot maximise citizens' individual welfare). The second one is about outputs but also outcomes. Public value focuses on both a public organisation's outputs and outcomes which means impacts upon those who enjoy the value/good in question or upon states of nature important to those people. In this context,

it means impacts upon citizens and states of nature related to them. The final issue is what has meaning for citizens. Public value focuses on what has meaning for citizens rather than what a public decision maker or public manager presumes is the best thing for the citizens.

It could be seen that public value in the early years was a concept of the aim that public managers are suggested to achieve. Public value consequently affects public organisations in general because it becomes a paradigm of public management. Alford and O'Flynn (2009) point out that the notion of public value as a paradigm emerged in debates about concepts which have been created after the New Public Management (NPM) paradigm declined due to its problematic concerns. For instance, an inappropriate likening of the public sector to the private sector, a characterisation of citizens as clients and an emphasis on measurement of performance in unjustified circumstances (Alfrod and Hughes, 2008, p. 135). This paradigm is called the Public Value Management paradigm by Stoker (2006). Stoker argues that the New Public Management paradigm postdates the Traditional Public Administration paradigm before the Public Value Management paradigm postdates it. He states that the Public Value Management paradigm presents the achievement of public value as its core objective. Moreover, he explains that public value is not just an aggregation of preferences of individuals who produce or receive public services. It is collectively defined by the deliberation of elected and appointed public officials, and key stakeholders of the public services. Moreover, the achievement of the public value depends on their actions which are chosen from interventions; options relying on the creation and maintenance of networks for public service provisions. Thus, networks of the public value deliberation and the public service provisions/delivery are the central features of this paradigm (Stoker, 2006, p. 42).

Besides, O'Flynn (2007, p. 358) mentions the public value as a new post-competitive paradigm that reflects a shift of the focus of public management from the focus on results and efficiency (of the New Public Management paradigm) towards the focus on an achievement of the public value creation. Similar to Stoker (2006), O'Flynn claims that an important part of the Public Value Management paradigm is the concept of collective preferences which is contrast to the concept of individualist preferences of the New Public Management paradigm. In this paradigm, collective preferences refer to what citizens collectively determine valuable. She also suggests that public managers in the Public Value Management paradigm have multiple goals such as steering networks for public value creation, creating and maintaining trust, broader outcomes of public services and responding to collective preferences.

Furthermore, a government activity is interconnected and interdependent, so it requires a collaborative effort to accomplish the public value (O'Flynn, 2007, pp. 360-361). It shows that, after public value has become the Public Value Management paradigm, the concept of network which is one form of collaborations or an interchangeable term with the term collaboration, was introduced to public management as a process to deliberately define the public value, accomplish the public value, and provide public services. This is related to my thesis that studies a collaboration for waste management of a Thai local authority because there is empirical evidence of how waste separation becomes a public value, how collaborations for waste management are created and maintained for years, and in how far

the collaborations can achieve their goals. These will also be discussed later in the chapter on results of the study.

Unlike the Traditional Public Administration and the New Public Management paradigms that identify the roles of politics as an initial input into the system and a final judge of public management, the Public Value Management paradigm treats politics as a mechanism for social coordination for several reasons. First, it enables people to cooperate and make choices based on the full consideration of human qualities and experiences rather than the individualism. Besides, political decision making is flexible, so it can deal with uncertainty, ambiguity and unexpected change. The final reason is that politics can move from a function to distribute benefits which are also offered by a market, towards a function to create a social production which tries to achieve collective interests (Stoker, 2006, pp. 46-47). This issue is important for my thesis because it proposes how politics possibly affect the participation of citizens, deal with challenges (e.g. uncertainty, ambiguity and change), and achieve collective purposes of collaborations for public service provisions. In the chapter on results of the study I will discuss how politics affect collaborations for waste management on a local government level of Thailand as well.

After the Public Value Management paradigm impacted on the creation of collaboration in public management, there was an introduction of a concept which is compatible with the paradigm. This concept is a normative model called the New Public Service suggested by Denhardt and Denhardt (2000, p. 550). They define it as a set of ideas about the role of public administration in the governance system that places citizens at the centre.

Furthermore, they propose seven practical lessons by New Public Service as follows (Denhardt and Denhardt, 2000, pp. 553-557):

The first lesson is 'serve, rather than steer.' New Public Service suggests than an important role of public managers that should be increased is to help citizens articulate and meet their shared interests, rather than a role to steer the society in new directions. The second lesson is 'the public interest is the aim, not the by-product.' New Public Service suggests that public managers should contribute to the creation of a collective notion of the public interest. They must create an arena in which citizens can articulate their shared values and develop a collective vision of the public interest. The third one is 'think strategically, act democratically.' New Public Service suggests that public managers should identify roles and responsibilities of stakeholders, strategically develop specific actions, and involve those stakeholders in collaborative processes of taking the actions to reach the desired (collective) goals.

The next lesson is 'serve citizens, not customers.' New Public Service argues that the public interest is a result of taking a dialogue about shared values, rather than aggregating self-interests of individuals. Thus, public managers will not respond to the demands of customers because the government has to serve every person who needs public services, both people who are actively seeking for public services and those who are not. Instead, they will focus on creating collaboration and building trust with citizens. 'Accountability is not simple' is another lesson. New Public Service suggests that, since public managers get involved in complex value conflicts with conflicting and overlapping norms, they should not make any

decision alone but through citizen-engaged processes. Moreover, they must ensure that the solutions to public problems which they select are consistent with laws, norms and other orders. The sixth lesson is value people, not just productivity. In New Public Service, collaboration, shared leadership and citizen empowerment are composed to be the norm both inside and outside public organisations. This concept argues that public organisations will succeed in the long run if they operate through processes of collaboration and shared leadership in respect of all citizens.

The last lesson is 'value citizenship and public services above entrepreneurship.' New Public Service argues that, because the New Public Management encourages public managers to act and think like business entrepreneurs, the public managers accordingly have narrow objectives to maximise productivity, satisfy customers, accept risks and take advantage of opportunities that arise. In New Public Service, public managers are not recognised as business owners who owned their organisations, programmes and resources. This concept suggests that the role of public managers must be reconceptualised as that of the responsible participants, so that they must manage more than requirements and resources of their organisations' programmes. Moreover, public managers will realise that the failure from risks they take, will not solely affect themselves but also the citizens. This is due to the fact that both risks and opportunities for New Public Service lie in the framework of democratic citizenship and shared responsibility. Therefore, public managers cannot decide what is best for the community without the citizen engagement.

This concept of New Public Service is compatible with the Public Value Management paradigm in several aspects. First, it tries to deal with the challenges which are encountered by the New Public Management paradigm. Next, it encourages public organisations to engage the stakeholders in a collaboration to find out collective goals and take actions in the process to accomplish those goals. However, its distinct characteristic is setting citizens as the centre of public management. This concept is related to my thesis in the terms that citizens are the centre of public management and the public managers will make decisions based on the citizens' engagement because in collaborations for waste management of local authorities in Thailand, citizens are encouraged to participate as key actors in waste management, and enabled to impact on the decision making on waste management of Thai local authorities.

(2.) Growth of Collaboration in Relations to Asian Countries

There is an example of an impact of the post-New Public Management approach in Malaysia. Malaysia faces problems of public sector corruption. In 2009, the Performance Management and Delivery Unit (PEMANDU) was established to advance the goals of economic and government transformation. It is a highly innovative and collaborative initiative. The government transformation programme is focused on improvements in public services in seven national key result areas. These key result areas have been established at national and ministerial levels, following a series of extended consultations involving public officials and a range of external stakeholders from the private sector and the civil society (Robinson, 2015, pp. 12-13). This factor is important because the empirical material of my thesis comes from Thailand, an Asian country so the Western-orientated literatures that are

most frequently mentioned in discussions, especially the dominance of UK and US case studies, need to be recontextualised to incorporate Asian and specifically the Thai context. The next section will be about potential forms that collaboration can take.

2.3 What Forms Can Collaboration Take?

2.3.1 Forms of Collaboration

Forms of collaboration are systematically conceptualised by Sullivan and Skelcher (2002, p. 42). Collaboration is divided by relationships of collaborating organisations and rules of governance into the continuum form similar to the continuums that I have mentioned in the 'levels of collaboration' section. However, this continuum is the most complex one ranging from the network at one end towards integration at another end as presented in Figure 2.4.

Figure 2.4: Forms of Collaboration

Terminology	Network	Partnership	Federation	Integration
Relationships Between Collaborating Organisations	Loose network of informal and ad hoc relationships.	-Limited agreement to share information. - Agreement to undertake joint activities. - Agreement to constitute formal governing body.	Creation of federal structure in which collaborating organisations agree to devolve some of their autonomy upwards.	Merger of collaborating organisations into a single organisation.
Rules of Governance	Self-government through mutual norms and obligations and shared values and trust.	⟷	External government through overarching constitution.	Hierarchy.

(Adapted from Figure 3.1, Sullivan and Skelcher, 2002, p. 43)

Sullivan and Skelcher (2002, p. 42) define that networking is an informal and ad hoc relationship of collaborating organisations. It has self-government through mutual norms and obligations, shared values and trust. Partnership has limited agreement to share information, agreement to undertake activities jointly, or agreement to constitute formal governing body. Federation has a creation of a federal structure in which collaborating organisations agree to devolve upwards parts of their autonomy. It has external government through an overarching constitution. Integration has formalised interactions among collaborating organisations that lead to the integration of collaborating organisations into a single organisation. Its rule of governance is hierarchy. This concept will be used to point out the particular forms of each collaboration for waste management of Thai local authorities by analysing their relationships between collaborating organisations and rules of governance to illustrate a clearer image of those waste management collaborations. Within each collaboration, there can be different forms of agreements between collaborating organisations. They will be presented in the next section.

2.3.2 Forms of Agreement

According to Benton (2013), agreements within a collaboration can be either formal or informal as follows (Benton, 2013, pp. 220-221):

(1) Formal Agreement

"Formal agreements can range from mutual aid pacts among neighbouring local jurisdictions to assist one another in fighting fires to cooperative arrangements to purchase vehicles and

equipment to joint operation of major utilities like sewage treatment plants and solid waste disposal facilities." (Benton, 2013, p. 220).

(2) Informal Agreement

"Informal agreements can take the form of ad hoc meetings, impromptu discussions, and demonstration projects, day-to-day sharing and trading of information about issues of mutual interest that involve services like natural resource preservation, zoning and planning, traffic control, and parks and recreation." (Benton, 2013, pp. 220-221).

These concepts will help in the analysis of the agreements that were made within collaborations for waste management of local administrative organisations in Thailand, whether formal or informal, or a combination of both formal and informal agreements.

2.4 What are the Main Challenges in Achieving Successful Collaboration?

In literature, there are some works that discuss the challenges that make collaborations unsuccessful or ineffective. In this literature, collaborations are called various terms such as collaboration itself (Huxham et al., 2000; Arganoff, 2003), network (Goldsmith and Eggers, 2004), and partnership (Matlin, 2001; Babiak and Thibault, 2009). However, they also use these terms interchangeably. According to the literature that I mentioned, there are six types of challenges of collaborations: goal, inter-organisational, expertise, structural, governance and external pressure challenges.

2.4.1 Goal Challenge

The first type is the goal challenge. It consists of goal incongruence, tension between competition and collaboration, and changing missions or objectives of a collaboration. The goal incongruence also has three forms. First, a difficulty in aligning goals of members can appear in a collaboration for addressing controversial issues such as teenage pregnancy. That is, members of a collaboration can have different standing points towards an issue which will affect how they want to deal with that issue. The second form of goal incongruence can occur when the government activates a collaboration but also competes against some parts of the collaboration. That is, sometimes members still provide the same service that the collaboration does because they do not want to lose their own interests. The final form is a goal incongruence emerging when members want to maximise their own interests although the government encourages them to dedicate themselves to public interests. For example, some members do not compete with the collaboration in providing public services, but they corrupt by using their appointed franchises for their own interests (Goldsmith and Eggers, 2004, pp. 40-43). Another example is that members who have less interest in a collaboration are less likely to have a commitment to bring their resources to a collaboration (Huxham et al. 2000, p. 348).

Next, the tension between competition and collaboration can occur if members of a collaboration compete for any interest such as contracts and funds from elsewhere. As a result, there can be mistrust and an information hoarding problem among the members (Goldsmith and Eggers, 2004, p. 46). In addition, this tension can ruin the true spirit of a collaboration, and lead to the frustration between the members (Babiak and Thibault, 2009,

p. 134). Finally, missions or objectives of a collaboration (e.g. where to invest shared resources and the focus on particular elements) that have been changed overtime can create tensions in the relationships between the members. Moreover, some of them can have a feeling of being threatened ((Babiak and Thibault, 2009, p. 131; p. 135).

2.4.2 Inter-Organisational Challenge

The second type of challenge is the inter-organisational challenge. It consists of contorted oversight, communication meltdown, fragmented coordination, data sharing, identifying mutual interests and tolerating divergent interests, working relationship complexity, pluralism, professional language difference and power difference. Contorted oversight is a problem or a failure of the government to exercise an adequate oversight on public-private partnerships or other outsourcing collaborations resulting in cost overruns, service failures, or scandals published by the media. Consequently, the government is likely to overact with insisting organisations to achieve every detail in their contracts by intruding on their work; for instance, licensing, enforcing codes, questioning the appropriateness of provider techniques or proposing other additional requirements to the partners. This can create a red tape in their public service deliveries (Goldsmith and Eggers, 2004, pp. 43-44).

Another challenge is communication meltdown. In a collaboration, informal communication channels can be created in addition to existing formal communication efforts. However, communication difficulties can occur when the government imposes restrictions on this informal communication. As a result, sometimes it takes a longer time for other members of a collaboration to report problems and respond to crises because they cannot use any

informal communication channels like before. Nevertheless, these communication difficulties can be solved by communication technologies; for instance, teleconferencing, video conferencing and other technologies that can enable remote communication (Goldsmith and Eggers, 2004, pp. 44-45). Fragmented coordination is another challenge in this category. The breakdown between any two members can undermine the performance of the whole collaboration (Goldsmith and Eggers, 2004, pp. 45-47). Data sharing also comes under the inter-organisational type of challenges. A lack of accurate data from other members can make that a collaboration of public service delivery, especially the outsourcing, fails because data developed within the government is generally impacted by political drivers. Moreover, it can make government officials have their expectations of partners who are contracted for public service delivery higher than an original baseline. This will create tensions among the members (Goldsmith and Eggers, 2004, pp. 47-48).

The next challenge is identifying mutual interests and tolerating divergent interests. Each member of a collaboration has their own objectives but mutual interests are important for cementing the relationship between members. However, if this task is not well managed, there can be conflicts of interest between members as a result (Matlin, 2001, pp. 12-14). The working relationship complexity is also a challenge. Some collaborations have a simple working relationship where collaborative organisations have direct interactions with individuals from their organisations who attend meetings of the collaborations. Other collaborations have a more complex working relationship which involves a variety of interactions between individuals from the collaborative organisations such as day-to-day contact. The working relationships of collaborative organisations also vary by different positions of individuals in each organisation. In general, executives or board members of

collaborative organisations have infrequent interactions. They might have meetings only once or twice a year, but their decisions can impact a collaboration on a policy level. The interesting point is that Huxham et al. (2000) argues that the responsibility to create infrastructures that make a collaboration effectively operate is often given to middle managers of each collaborative organisation. They jointly work in many forms such as being formal committees and having informal interactions (pp. 341-342). This argument will be considered in the empirical chapter when discussing roles of the committees of waste management collaborations.

Another challenge in the second category is pluralism. Pluralism is about how actions taken in one collaboration can relate to other collaborations. In some cases, a grand collaborative plan has been developed by the major member of the collaboration in order to organise these links (Huxham et al., 2000, p. 344). The collaborations for waste management in Thailand also have a grand collaborative plan on clustering local administrative organisations who participate in waste management collaborations nearby provincial areas. Normally, one large-sized local administration with high capacities to collaborate and do waste management will be assigned by the national government to be a chief of each cluster, to advise and support other participating organisations. Professional language is a challenge as well. There are differences within the professional languages of different organisations in the collaboration. As a result, misunderstandings among them can happen. Huxham et al. (2000) points out that individuals from participating community organisations can sometimes express their frustration or even anger if some members of a collaboration use professional jargon in their meetings. This point is relevant to this paper because the waste management collaboration policy sets the community-based waste management as the core

principle for waste management collaborations. It is interesting to present if any professional language challenges occur when representatives from local administrative organisations and other government organisations go to work with citizens in the local communities (p. 349).

The final challenge of the second type of challenge is power difference. There can usually be a power difference between organisations within a collaboration. For example, a small organisation can feel vulnerable when it collaborates with large or national-level organisations that can bring major resources to the collaboration. However, a larger organisation can also feel vulnerable if it works with smaller organisations but more crucial in achieving goals of the collaboration. These imply that Huxham et al. (2000) believed that the size and the importance for the achievement of a collaboration can impact the power difference between members of the collaboration. The power difference will imbalance the degree of autonomy to act in a collaboration (p. 350). This concept will be used to discuss how representatives from communities, small local administrative organisations, or other smaller organisations reacted when they worked with a large local administrative organisation, national government agencies or large business companies in the empirical chapters.

2.4.3 Expertise Challenge

The third type is the expertise challenge. It consists of the lack of staff's collaborative capacities and the lack of professional development. First, a collaboration can face the lack of public staff with the necessary capacities that are required to effectively manage networks; for instance, a good network procurement capacity that requires staff with broad

experiences and an ability to forecast different outcomes from different arrangements, and different results from different members of a collaboration. There are three factors that can cause this capacity shortage of government members. First, there is no certain career advancement for public staff that are good project managers or negotiators. Their job promotions depend more on their specialisation and expertise in their job positions. The next factor is the reduction of available staff who have been trained in a network procurement. The final factor is the failure in training existing procurement staff to deal with the more complex environment of a collaboration. These two factors will become greater when experienced staff members retire or leave their jobs (Goldsmith and Eggers, 2004, pp. 48-49). The final challenge of this type is the lack of professional development. A collaboration is likely to be effective if it can expand its professionalism in several ways; for instance, providing support, advice and technical assistance when members require, building both individual and organisational capacities, and developing a set of guidelines for good practice among members (Matlin, 2001, pp. 17-18). In contrast, a collaboration might not succeed if it lacks this development.

2.4.4 Structural Challenge

The fourth type of challenges of a collaboration is the structural challenge. It consists of membership complexity and the purpose of a collaboration. In some collaborative organisations, their members can clearly represent the organisations and receive support from their organisation. In contrast, other organisations have a limited extent in allowing their members to participate in a collaboration with personal capacities. The extent of support that those individuals will receive from their organisation depends on their power

and role within the organisation, and the degree of a collaboration agenda which is relevant to the organisation's aims. In some collaborations, members of them are also the collaborations. Thus, there are memberships of both the whole collaboration and the sub-collaborations (of members of the collaboration). Individuals in those collaborative organisations can face the complexity of memberships that they own, and the complexity of hierarchies of collaborations that they involve. Furthermore, there can be confusion on who the members of a collaboration are since many collaborations do not have a formal membership list. For this reason, individuals who are involved in a collaboration have to interpret who the members actually are. The purpose of a collaboration is also important. For example, a regional initiative might more appropriately involve regional organisations than national or international organisations. Besides, in some collaborations, there might be a particular level of government or function that has been selected as a key actor of a collaboration. In the case of my thesis, the waste management collaboration policy is a national initiative, but it particularly selects local administrative organisations to implement this policy (Huxham et al., 2000, pp. 342-345).

2.4.5 Governance Challenge

Another type is the governance challenge. It consists of the imbalance between collective principles and freedom of action. In a collaboration, members may not always agree to follow the collective principles and may want to go the opposite or other directions (Matlin, 2001, p. 16). If the members are more likely to use their freedom of action, it is possible that a collaboration will be less effective. The sixth type is the external pressure challenge. It consists of the change in the government system, the change in public policies, and the

pressures from external organisations. Arganoff (2003) argues that the challenge to collaborate is a range of changes in the government system. He also points out that changes in the government system can positively impact the collaboration. For example, in the US many changes in the federal system such as changes in federal programmes increased opportunities of collaboration between government agencies. In addition, the state governments' new programmes such as the programmes for social services, health, transportation, environment and economic development accelerated collaboration (pp. 193-194). The final type of challenges to collaborate is the change in government policies. Huxham et al. (2000) argues that public policies often promote initiatives and change purposes of the existing ones. These can also make changes to the nature of collaborative organisations related to each public policy. This concept is important in letting me consider how public policies on waste management collaborations have changed from the first policy until the latest one, and how these changes impact the nature of the members and the collaborations themselves in empirical chapters of this thesis.

The concepts of challenges of collaboration are useful for explaining why some local authorities are not successful in operating their waste management collaborations like those who have effective collaborations. They can also help in the development of recommendations for successful waste management collaborations in the last chapter of this thesis. The last section of this chapter will discuss limitations or problems that can be encountered by any collaboration.

2.5 What are Limitations or Problems of Collaboration?

McGuire and Agranoff (2011) have discussed two types of limitations of collaboration in general: operational and performance limitations (pp. 267-274):

2.5.1 Operational Limitations

The collaboration can operate in a limited extent due to the power imbalances, over processing and policy barriers.

(1) Power Imbalances

Power of members of a collaboration can be either a force to facilitate or a force to hinder processes of collaboration. Examples of uses of power as a blocking force are keeping certain problems off the network's agenda, withholding support for key network strategies or decisions, and withholding required agency-controlled resources by a lead organisation.

(2) Over Processing

Extensive processes or actions in a network can lead to unsuccessful collaborative outcomes and collaborative inertia. Collaborative inertia refers to the output from a collaborative arrangement being negligible, the rate of output being extremely slow, or stories of pain and hard grind being integral to successes achieved. It happens very frequently in a collaboration in practice (Huxham and Vangen, 2005, p. 60). Moreover, collaboration in practice can experience several problems consisting of trust, ambiguity, complexity, collaboration fatigue and dynamics problems. Firstly, let us consider trust problems. Huxham and Vangen

(2005) have derived some collaborative management perspectives from action researches from practitioners of collaboration in a wide variety of collaborative situations (pp. 60-61). The perspective on trust problems is that trust is necessary for successful collaboration, but we are suspicious of each other (p. 66). Although trust is a precondition for successful collaboration, and the existence of trusting relationships between members is an ideal situation for collaboration, the starting point in practice is that members are feeling suspicious of each other more than feeling trust because often most members do not choose their collaborative organisations (p. 66).

The next issues are ambiguity problems. Based on the observations of collaborative situations, Huxham and Vangen (2005) have found that the lack of clarity about who the collaborative members are, frequently occurs. That is, different members often list different collaborative members from each other, even staff members who are very centrally involved in managing collaborations often cannot name collaborative members without referring to formal documentation. Reasons for this include the different statuses or commitments that collaborative organisations have regarding to the collaboration (p. 69). These problems matter because it is difficult for the members to agree on aims, build mutual understanding, and manage trust and power relationships with other organisations if they do not clearly know who their collaborative organisations are (p. 72). Complexity problems are the next problems. The complexity in the structure of collaboration can add to the ambiguity problems that are previously mentioned (Huxham and Vangen, 2000, p. 783). One possible problem in practice is that members of a collaboration find themselves participating in multiple collaborations. This can link to the problem of ambiguity in representativeness of each member. Another possible problem is departments or divisions within an organisation

individually participating in a collaboration. As a result, it is possible that their representatives might consider themselves as department or division representatives rather than organisation or collaboration representatives (Huxham and Vangen, 2000, pp. 786-787). Collaborative fatigue is the case that one organisation collaborates with multiple organisations. For example, individuals as representatives of organisations regularly attend five to six collaborative schemes. As a result, it is difficult for them to judge when another member is inputting the agenda from another collaboration (Huxham and Vangen, 2000, p. 69; p. 74).

The final problems are dynamics problems. They are about changes in collaboration. In practice, policy influences often generate restructuring of collaborative organisations such as merger and de-merger, new start-ups and closures, acquisitions and sell-offs (Huxham and Vangen, 2005, p. 72). Policy changes in individual organisations or a collaboration can affect the purposes of a collaboration. These can be either internally generated (e.g. the result of a revision of organisational strategic directions) or externally generated (e.g. the result of a public policy). There can also be a shift in members of a collaboration. The problem is not that the collaboration stops working, but that the new policy might ask the members to work differently, which means breaking up existing working relationships between the members (Huxham and Vangen, 2005, p. 74).

(3) Policy Barriers

A network can attempt to change public policies in order to overcome their policy provisions. However, changing the policies will be a difficult process. Policy barriers arise because

representatives of organisations who participate in a collaboration are not completely autonomous. Börzel (1998) explains that it is the structural dilemma which is the dilemma of inter-organisational structure of a collaboration. It is based on bargaining between representatives of collaborative organisations who are not completely autonomous in the bargaining process. They are subject to the control of their organisations resulting in their orientations of actions and their commitments to the collaboration (p. 261). Furthermore, policy barriers can be placed in funding or programmatic solutions provided by the government. This is due to the fact that governments have unique resources and goals. Klijn and Koppenjan (2000) explains that governments have a special position compared to other collaborative members of a network. Governments have unique resources and work to achieve unique goals. They are in a special position which in most cases cannot be filled by others. Their unique resources include sizeable budgets and personnel, special powers, access to mass media, a monopoly on the use of force and democratic legitimisation. Access to these resources makes governments have considerable powers (p. 151).

2.5.2 Performance Limitations

It is problematic to assess public management networks with the same output or outcome-orientated aims as those of bureaucratic organisations. Participants in a network try to achieve both their individual organisations' goals and the collective goal. The goals can be different across organisations and networks. The effectiveness of the network can be measured by the extent to which the network achieves its goals, regardless of what the goals are and how they have been formulated. In terms of performance, a collaboration can

experience process versus outcome and multidimensional performance difficulties as the consequences.

(1) Process versus Outcome Difficulties

There are two difficulties which members of a collaboration can experience when assessing the goal achievement and the effectiveness of a collaboration consisting of difficulties on how to measure and evaluate performance of a collaboration, and what to do with those results of performance measurement and evaluation.

(2) Multidimensional Performance Difficulties

Collaboration performance must be measured on both multiple dimensions and multiple levels of a collaboration. However, in a collaboration that has multiple members, there are various relationships between members such as principals, agents and clients. These can result in various assessments of network effectiveness made by different members of a collaboration, and a collaboration itself. As a result, there can be difficulties in reaching agreements on the measurement of performance and effectiveness of a collaboration.

These concepts are useful for analysing problems that Thai local governments encounter through their waste management collaborations and can be the foundations to develop the recommendations for the solutions to potential problems of collaborations for waste management in the future.

Conclusion

This chapter has provided concepts and theories that can be used to analyse collaborations for waste management of local administrative organisations in Thailand. These consist of definitions of collaboration, levels of collaboration and alternative terms for collaboration that make us understand what collaborations are in the public management perspective. Moreover, concepts of wicked problems and public value approach are key theoretical concepts to explain why collaboration needs to take place in public management including on the local government level. Next, concepts of forms of collaboration and possible agreements for collaboration help us understand characteristics of collaborations that can occur in waste management of the Thai local government. Finally, concepts of challenges and limitations of collaborations can become the bases for the assessment of capacities of local authorities to manage waste management collaborations and develop the recommendations so that they become successful or effective to them. In the next chapter, some theoretical frameworks on capacities to collaborate will be presented and analysed in order to find the particularly useful frameworks for understanding collaborative capacities of Thai local administrative organisations on the waste management issue.

CHAPTER 3

RESEARCH DESIGN AND METHODS

Introduction

Chapter 1 showed that the findings of about a quarter of research publications on collaborations in Thai local government mentioned aspects that could be considered to be within the concept of ’collaborative capacity,’ namely ’institutional capacity,’ ’education capacity,’ ’training capacity,’ and ’cultural capacity.’ However, this research did not specifically discuss the idea of collaborative capacity and was not based on the literature on collaborative capacity. Thus, Chapter 1 concluded that there was a gap in the Thai literature and that a more focused analysis of collaborative capacity was necessary. In addition, the wider and mainly European and US literature on collaboration was reviewed in Chapter 2. This analysis concluded that collaboration was a complex issue that involved a number of problems and limitations. There is literature on the role of ‘boundary spanning’ and ‘network management’ as a means to overcome these problems. However, this focuses on the individual-level actions and does not consider whether there are organisational-level actions that can also support collaboration.

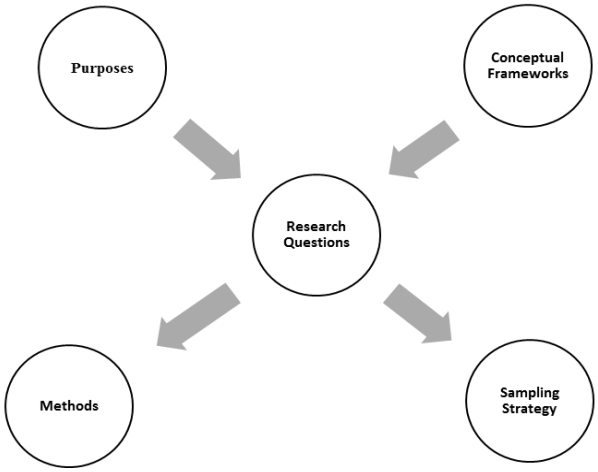
The concept of collaborative capacity provides a way of combining individual and organisational levels in analysing how collaborations are developed and managed, and how they achieve their outcomes. Therefore, this chapter focuses on the concept of collaborative capacity which will be used as a major concept for conducting my empirical research and

showing how the whole research is designed to enable me to gather and analyse data, and draw conclusions related to my research questions. The presentation of this chapter begins with the principle of research design, followed by the conceptual frameworks on collaborative capacity and their operationalisations. Next, it will discuss research strategies, types of research design, sampling frames, sampling, samples, research methods, data analyses and research ethics.

3.1 Principle of Research Design

Research design provides a framework for data collection and data analysis. Robson (2011) proposed the research design framework to show the significant components of research design consisting of purposes of the research, conceptual frameworks, research questions, research methods, and research sampling strategy as presented in Figure 3.1. I will use this framework to design my research. Each component of the research design will be discussed respectively.

Figure 3.1: Research Design Framework



(Adapted from Robson, 2011, p. 71)

3.1.1 Purposes of the Research

The literature reviews in Chapter 1 and 2 show that there is a gap to be filled in relation to examining the role of collaborative capacity in collaborations (see also the discussion of collaborative capacity below). Accordingly, my research has five purposes as follows:

(1) Find out the existing state of knowledge on Thai LAOs' involvement in collaborations.

(2) Find out the best way to conceptualise, collect, and analyse data on Thai LAOs' collaborations for waste management.

(3) Find out the existing state of Thai LAOs' collaborations for waste management.

(4) Explain the forms and outcomes of collaborations by Thai LAOs.

(5) Identify the implications for policy and practice by Thai LAOs and other agencies.

3.1.2 Conceptual Frameworks – Collaborative Capacity and Outcome of Collaboration

(1) Collaborative Capacity

The literature defines and operationalises the concept of collaborative capacity in various ways. Most of these attempts to define collaborative capacities are based on authors' ideas rather than empirical research. In fact, there has been very little empirical research into the concept, as the literature discussed below illustrates, for example, how actors think about the capacities that are important to them or their organisations when developing or managing collaborations. The research in this thesis starts with the distinction made by Thompson and Perry (2006) between administrative and social capacities.

As Thomson and Perry stated: “the key to getting things done in a collaborative setting rests in finding the right combination of administrative capacity (through coordination and elements of hierarchy) and social capacity to build relationships”. Thompson and Perry do not explain their distinction in any more detail, and it has been left to other authors to define the elements of administrative and social capacities. These discussions do not necessarily focus on collaboration but address the capacities necessary in other aspects of public sector management.

(1.1) Administrative Capacity

Lodge and Wegrich (2004) and Hertie School of Governance (2014) discuss the concept of administrative capacity in bureaucracy of the state (the public sector) that is relevant to problem-solving and innovation. Administrative capacity is defined as a set of skills and competencies which are expected of public bureaucracies to facilitate and contribute to problem-solving. They cover both structural and procedural provisions that enable bureaucracies to perform particular functions, and embrace capable and skilful individuals within bureaucracies, to meet the expectations of their political masters and the public. From their works, administrative capacity has four subtypes as follows:

(1.1.1) Delivery Capacity

This capacity deals with the frontline of policy. It is defined as a capacity to make things happen in relation to the use of available resources, to ensure that citizens will receive the public services that they need. For example, the types of resources required to ensure that waste will be disposed, water will be supplied, and post will be delivered. Moreover, the delivery activities include both service provision such as the issuing of welfare payments and meals on wheels, and more coercive activities such as policing and tax collection. It is also related to the powers in public administration to make things (public services) happen especially when the private sector fails to do so.

(1.1.2) Regulatory Capacity

This capacity addresses the control and oversight of public activities. It is a control or enforcement capacity and is often related to an oversight function. It entails the presence of regimes combining standards (statements on what is to be achieved), with an apparatus detecting and enforcing compliance. It can be a challenge for boundary spanning where there are different regulatory bodies involved in a collaboration.

(1.1.3) Coordination Capacity

This capacity applies to the areas where collaborative governance is supposed to take place. It is about bringing together and aligning organisations from different backgrounds for their collective purposes, for instance, to solve their shared problem. It relies on competencies of individuals, about both the ability to hierarchically impose ways of working together and a non-hierarchical facilitating role or orchestrating role. It is also about an ability to deal with difficult issues that arise in mediating agreements between organisations, for example, the 'boundary spanning' competency. The concept of boundary spanning has been discussed in Chapter 2 already.

An individual with the boundary spanning competency is a so-called 'boundary spanner.' Boundary spanners are confronted with the accountability interface between their role as organisational representative and that of partner in a multi-agency environment. They can be identified as a network manager who can build effective relationships with a wide range of other actors, has an ability to manage in non-hierarchical decision making environments through negotiation and brokering, and perform the role of policy entrepreneur who can

connect problems to their solutions and mobilise resources and efforts in the search for successful outcomes (William, 2002).

(1.1.4) Analytical Capacity

This capacity is defined as the way in which the government is informed about current developments and future projections. It addresses demands on forecast and intelligence that facilitate policy-making under uncertain conditions, for instance, reducing barriers for migrants and young people to enter the labour market, and addressing the mismatches of energy supplies and user demands. Moreover, it is relevant to how the government ensures transparency and legitimacy of the application of knowledge and deals with alternative sources of information, and how the information is being accessed and disseminated.

Although the concept of administrative capacity is not directly proposed for public organisations to use in collaboration, there is the literature that discusses how public organisations employ this concept in their collaboration. For example, the study of Grotenbreg and Buuren (2016) that studies how public organisations including national and local authorities employ their administrative capacities to succeed public-private collaborations such as integrated energy and waterworks.

When considering each type of administrative capacity, the delivery capacity could be employed in the form of financial contributions and allowing external actors to use public infrastructure, the analytical capacity could be employed in the form of sharing

governmental data with private organisations, the coordination capacity could be employed in the roles of network manager and boundary spanner which are performed by public authorities, and the regulatory capacity could be performed by adjusting public authorities' existing rules and drawing up new ones.

(1.2) Social Capacity

Lichterman (2009) states that social capacity is an individual's ability to work together to organise public relationships, rather than give responsibility for those relationships wholly to state actors or the flux of market exchange. To expand, this capacity is an ability to act as a mutually responsible citizen in organising public relationships, rather than leaving those relationships entirely under the direction of either impersonal market mechanisms or administrative fiats of the state. This is similar to the ideas of 'boundary spanning' and 'network management' discussed in detail in Chapter 2. In addition, its defining feature is the ability to talk and act reflectively, to coordinate and engage in problem solving that may involve state or market actors and civic actors including a variety of socially diverse groups and individuals.

This social capacity has a considerable overlap with the 'coordination capacity' discussed within the 'administrative capacity' section above because boundary spanning and network management require the ability to work with individuals and groups across organisational boundaries in a collaborative way. Similarly, regulatory activity could also involve social capacity and not necessarily just rely on contracts and legal mechanisms. Thus, there could be a considerable overlap between these administrative and social features.

(1.3) Collaborative Capacity in Longitudinal Perspective

The concept of collaborative capacity could be considered on the time dimension, in three groups: collaborative capacity as antecedent, collaborative capacity as developmental capacity, and collaborative capacity as outcome.

(1.3.1) Collaborative Capacity as Antecedent

Sullivan and Skelcher (2002) discuss that collaborative capacity could be distinguished into five types based on levels of collaboration: strategic, governance, operational, practice, and community and citizen capacity.

(1.3.1.1) Strategic Capacity

This capacity is a capacity to develop and define the collaborative vision and key themes.

(1.3.1.2) Governance Capacity

This capacity is a capacity to create accountability upwards to any superordinate body and outwards to collaborative partners and communities.

(1.3.1.3) Operational Capacity

This capacity is a capacity to have organisational structures and processes to deliver new collaborative activities.

(1.3.1.4) Practice Capacity

This capacity is a capacity to exercise specific skills and abilities among workers ina collaboration.

(1.3.1.5) Community and Citizen Capacity

This capacity is a capacity to have cultural, material, and personal resources to take part in any change process of a collaboration.

(1.3.2) Collaborative Capacity as Developmental Capacity

Sullivan, Barnes and Matka (2006) also use the collaborative capacity framework of Sullivan and Skelcher (2002) but they add more explanation to each collaborative capacity as follows:

(1.3.2.1) Strategic Capacity

This capacity is necessary to enable partners of a collaboration to act collectively to determine their missions and frameworks for collaborative actions coupled with necessary infrastructure supports. I think this collaborative capacity is mainly about ‘collective decision making.’

(1.3.2.2) Governance Capacity

This capacity concerns the development of mechanisms to secure the good governance of collaborative actions, and requires the development of accountability mechanisms to make

collaborative activities transparent. Thus, I think this capacity is mainly about ‘making a collaboration transparent.’

(1.3.2.3) Operational Capacity

There is no added explanation by Sullivan, Barnes and Matka (2006) to this type of capacity.

(1.3.2.4) Practice Capacity

This capacity ensures that those whose interventions are essential to the achievement of collaborative advantages are equipped with the necessary skills and supports. I think it can be implied that the practice capacity is mainly about ‘the staff of a collaboration being well equipped with relevant skills and support.’

(1.3.2.5) Community Capacity

This capacity is based on the rationale that a collaboration should support the involvement of communities and citizens. Therefore, this capacity is mainly about ‘public participation encouragement.’

(1.3.3) Strategies for Developing Collaborative Capacities

Sullivan, Barnes and Matka (2006) argue that the relationship between ‘capacity identification,’ ‘capacity building,’ and ‘collaborative action’ is not necessary to be a linear order because collaborations could begin to take actions before they have sufficient collaborative capacities, and the capacity building could go alongside collaborative actions. They also suggest that there are approaches of strategies that could develop collaborative capacities: consolidation, mainstream, emergent, and innovation strategy.

(1.3.3.1) Consolidation Strategy

This strategy is a strategy to facilitate further progress of a collaboration by removing any existing obstacles and opening new opportunities to a collaboration.

(1.3.3.2) Mainstream Strategy

This strategy is a strategy to secure any mainstream change in relation to partners of a collaboration. It ensures that all collaborative organisations would be informed, and made to understand their contributions or roles within a collaboration.

(1.3.3.3) Emergent Strategy

This strategy identifies the best way to deliver collaborative actions in a complex or unfamiliar environment.

(1.3.3.4) Innovation Strategy

This strategy requires a transformation of ways of working across organisations and sectors of a collaboration, and finds out new ways to the design or delivery of collaborative actions. Sullivan, Barnes and Matka (2006) state that the relationship between these strategies and collaborative capacities is not a causal relationship. It rather is a relationship that shapes one end and is shaped by the other end.

(1.3.4) Collaborative Capacity as Outcome

Finally, Weber, Lovrich and Gaffney (2007) see collaborative capacity as an outcome of a collaboration. It can be enhanced, stays the same, or can be diminished. They also state that it has multiple dimensions: vertical, horizontal and vertical-horizontal.

(1.3.4.1) Vertical Dimension

Collaborative capacity in a vertical dimension involves the hierarchical relationship between the central and local government authorities, and between public authorities (both central and local government authorities) and the targeted community of a collaboration (the community includes different groups of individuals e.g. NGOs and citizens). This dimension focuses on legal authorities and the goals of collaborative programmes. Assessing collaborative capacity in this dimension is a matter of measuring the compliance rates associated with laws and regulations of the central and local government authorities, and measuring support for the laws in question among the community targeted for the enforcement of collaborative programmes.

(1.3.4.2) Horizontal Dimension

Collaborative capacity in a horizontal dimension is based on the idea that solving difficult and complex problems would force organisations into interdependency or reliance on others. In this dimension, collaborative capacity can be measured through two features: the extent of change (if any) in social capital, and the institutional commitment of the targeted community to goals of the collaborative programmes.

(1.3.4.3) Vertical-Horizontal Dimension

Collaborative capacity in a vertical-horizontal dimension captures the relationship of the central and local government authorities, the relationship between public authorities (both central and local government authorities), and the targeted community (involving the groups of NGOs, citizens, etc.). In this dimension, collaborative capacity could be measured through any changes in the perceptions of trust and good faith bargaining from the targeted community towards the public authorities, the specific and general utility of collaborative problem-solving approaches, and the issues of resource acquisition and application toward collaborative goals of the public authorities.

(1.3.5) How the Concept of Collaborative Capacity Informs the Research Design

There are many aspects of administrative and social collaborative capacities on which empirical research could be undertaken. This thesis concentrates on particular aspects because of the resources available to the researcher and the context in which the empirical research will be undertaken. The ways in which collaborative capacities are defined and operationalised follow from these decisions with a research focus. Two aspects of collaborative capacity are selected for detailed empirical research and shape the methods employed.

First, the thesis focuses on understanding more about how actors in collaborations think about the capacities that have been helpful in developing and managing their collaboration and achieving positive outcomes. To achieve this, a case study design is used. Case study interviews use a topic guide and so the questions are open-ended. In other words,

a literature-based set of definitions of collaborative capacity are not imposed on the respondents. This means that the analysis of the case study data in relation to collaborative capacities is more inductive, with the researcher trying to identify these from the interviews, documents and other sources. The analysis, however, keeps the overall distinction between administrative and social sides of collaborative capacity to provide a broad structure within which to identify actor-based definitions.

Secondly, the thesis examines the relationship between collaborative capacities and outcomes. This focuses on the administrative side of collaborative capacity. The choice to focus on this and not to include the social side is because it is a large-scale survey of individual LAOs designed to understand the relationship between administrative capacities and collaborative outcomes. Because of this, and to enable the coding task to be manageable for the PhD project, the survey has closed questions. It will also be completed by an unknown respondent in each LAO. Therefore, the kind of questions that would need to be asked about boundary spanning and relationship management actors, their roles, problems and so on would be unlikely to obtain sufficiently reliable data on these individual relational aspects of the organisation's collaborative capacity.

However, the survey does ask questions about the strategic policy context for collaborative relationships, i.e. the extent to which the collaboration has strategies and policies that might institutionalise relationships and so reduce the need to rely on boundary spanners or relationship managers. Close-ended questions in the survey generate data that is subject to statistical analysis and hypothesis testing.

(2) Outcome of Collaboration

Gray (2000) identifies five approaches to assess outcomes of the collaboration: problem resolution or goal achievement (also in Bardach, 1998), generation of social capital, creation of shared meaning, changes in structure of collaboration, and shifts in power distribution. Thomson, Perry, and Miller (2008) operationalise Gray's framework to evaluate collaboration outcomes in their survey study as follows:

(2.1) Perceived Effectiveness - How effective is this collaboration in achieving its expected purpose and outcomes?

(2.2) Perceived Increase in Quality of Working Relationships - Overall, how would you rate the quality of working relationships that have developed between your organisation and partner organisations as a result of this collaboration?

(2.3) Perceived Broadening of Views - Overall, to what extent has your organisation's view of the issues or problems that brought the collaboration together broadened as a result of listening to partner organisations' views?

(2.4) Perceived Increase in Network Density - Overall, to what extent has your organisation increased its interaction with partner organisations (e.g. increased referrals and/or service contracts, joint program development) as a result of the collaboration?

(2.5) Perceived Increase in Power Relationships - Overall, to what extent has the collaboration helped to make partner organisations' influence on each other more equal?

Moreover, Klijn, Steijn and Edelenbos (2010) have proposed the index of items for measuring outcomes of the collaboration as presented in Table 3.1.

Table 3.1: Index of Items for Measuring Outcomes of the Collaboration

Content Outcomes	Items
Innovative character	Do you think that innovative ideas are developed during the (collaborative) project(s)?
Integral nature of solution	Do you think that different environmental functions (in what ways?) have been sufficiently connected?
Involvement of actors (content)	Do you think that in general the involved actors have delivered a recognisable contribution to the development of the results?
Effectiveness solutions	Do you think that the solutions that have been developed really deal with the problems at hand?
Effectiveness in the future	Do you think that the developed solutions are durable for the future?
Relation costs and benefits	Do you think that, in general, the benefits exceed the costs of the collaboration process?
Innovative character	Do you think that innovative ideas are developed during the (collaborative) project(s)?

Process Outcomes	Items
Level of management	Do you think that the involved actors have substantively contributed to the management of the project?
Conflict resolution	Do you think that conflicts and differences of opinion have been adequately solved during the project?
Deadlocks	Did you witness any disturbing deadlocks during the project?
Productive use of differences	Do you think that the involved actors have made use of the existing different perspectives and insights among the actors in an adequate way with regard to solutions and problems in the project?
Contact frequency	Do you think that the involved actors had frequent contact with each other during the project?
Support	Do you think that the results from the project can expect the support of the involved actors?

(Adapted from Klijn, Steijn and Edelenbos, 2010, pp. 1080-1081)

(2.6) How the Concept of Outcome of Collaboration Informs the Research Design

This thesis relies on the framework of Gray (2000) and the operationalisation of Thomson, Perry, and Miller (2008). However, I select only two types of outcomes to be applied to my study which are problem resolution or goal achievement, and working relationships between organisations in question and their partner organisations. The reason why I choose problem resolution or goal achievement as the first outcome to be studied is that my research studies

collaborations for waste management of Thai LAOs in the local government area, which are initiated because of the wicked problem of the increasing amount of waste. Moreover, I select the working relationship as another outcome of the collaboration to be studied because my research emphasises the collaborative capacities of Thai LAOs. In other words, the capacity to collaborate with other organisations or sectors of Thai LAOs. The working relationship is a result of the capacity to collaborate.

Therefore, based on the concepts of collaboration outcomes that I mentioned, I would use two types of outcomes -i.e. problem-solving and working-relationship to assess outcomes of the collaborations for waste management of Thai LAOs, and to show the relationships between their collaborative capacities and these outcomes. In order to measure the problem-solving and working-relationship outcomes, I have applied the index for measuring content and process outcomes of Klijn, Steijn and Edelenbos (2010) which has been mentioned earlier.

3.1.3 Research Strategies

Research strategy is a general orientation to conduct social research. In most literature on methodological issues, they distinguish research strategy in social science to be either quantitative or qualitative research. However, there is also one research strategy referred to as a mixed method research. For this reason, it could be assumed that, in social research, there are three research strategies: quantitative, qualitative and mixed methods research (Bryman, 2012).

(1) Quantitative Research

This research strategy emphasises quantification in data collection and data analysis. It entails a deductive approach to the relationship between a theory and research; i.e. research has a role to test a theory. It also incorporates practices and norms of the natural scientific model and the positivism. Moreover, it views social reality as an external and objective reality.

(2) Qualitative Research

This research strategy is considered to be contrast to the quantitative research since it emphasises words rather than the quantification of data collection and data analysis. It entails an inductive approach to the relationship between a theory and research; i.e. research has a role to generate a new theory. In addition, it rejects practices and norms of the natural scientific model and positivism. It rather emphasises the ways individuals interpret the social world. Finally, it views social reality as a result of individuals' creation.

(3) Mixed-methods Research

This research strategy combines research methods associated with both quantitative and qualitative research. Moreover, it has a research design that clearly specifies the sequencing and priority that is given to the quantitative and qualitative elements of data collection and analysis. It also has an explicit account of the way the quantitative and qualitative aspects of the research relate to each other (Robson, 2011).

To conduct my research, I selected the mixed methods strategy because the quantitative strategy is appropriate when studying Thai LAOs in general around the country. In addition, the qualitative strategy is appropriate for studying a small number of the Thai LAOs that are successful in their collaborations. Furthermore, an amount of data from the quantitative strategy and a richness of detailed data from the qualitative strategy will supplement each other and make my research complete in answering the research questions. Robson also proposes six typologies of multi-strategy designs focusing on the sequencing and status of data collection methods: sequential explanatory, sequential exploratory, sequential transformative, concurrent triangulation, concurrent nested, and concurrent transformative designs.

(1) Sequential Explanatory Design

This design is characterised by the collection and analysis of quantitative data followed by the collection and analysis of qualitative data. Priority is given to the quantitative method. These two methods are integrated during the interpretation phase of the study. The qualitative data functions to help explain and interpret the findings of a primarily quantitative study.

(2) Sequential Exploratory Design

This design is characterised by the qualitative data collection and analysis followed by the quantitative data collection and analysis. Priority is given to the qualitative method. The findings are integrated during the interpretation phase. The primary focus of this design is to explore a phenomenon.

(3) Sequential Transformative Design

This design is characterised by the fact that one method precedes another method, with either the quantitative or the qualitative method first. Priority may be given to either method. The results are integrated during the interpretation phase. This design is primarily guided by a theoretical perspective such as conceptual frameworks.

(4) Concurrent Triangulation Design

This design undertakes quantitative and qualitative methods separately, independently, and concurrently. The results are compared to assess their convergence.

(5) Concurrent Nested Design

This design involves the embedding or nesting of a secondary method within a study with one main or primary method. The primary method could be either quantitative or qualitative.

(6) Concurrent Transformative Design

This design is primarily guided by a researcher's use of a specific theoretical perspective as in the sequential transformative design.

It could be said that the design of my research is the sequential transformative design because both quantitative and qualitative parts are importantly employed, and their results would be integrated in order to answer the research questions.

3.1.4 Research Designs

My research is composed of two types of research design: cross-sectional or survey and case study research designs.

(1) Cross-Sectional or Survey Research Design

This research design has four key elements (Bryman, 2012). First, it entails the collection of data on more than one case because examining more than one case of data allows researchers to find out variation of the data. Second, the data is collected at a single point in time. Third, the data is quantitative or quantifiable. Finally, the data relates to two or more variables. These variables would be examined to find out the patterns of association between them. The research methods with which most people are familiar are questionnaires and structured interviews. However, other methods such as structured observation, content analysis and official statistics could also be employed in this research design.

In addition, a survey can be further differentiated regarding to its scope. For example, a study of contemporary developments in post-secondary education might encompass the whole of Western Europe whereas a study of subject choice might be confined to one secondary school. No matter what a survey is, large-scale or small-scale, the data collection typically involves one or more of these four data gathering techniques (Cohen and Manion, 1994): structured or semi-structured interviews, self-completion or postal questionnaires, standardised test of attainment or performance, and attitude scales.

My survey is conducted as an on-line survey which is the web-based survey. I plan to use the SurveyMonkey (www.surveymonkey.com) to do my web-based survey. It is a private American company that enables users to create their own web-based surveys. Its basic service is free of charge. However, in case that the response rate of this online survey does not reach the minimum percentage that I need for statistical analyses, I would send the questionnaires to Thai LAOs by post. The data that the survey obtains might not be detailed so I would also conduct case studies to obtain the detailed data to supplement the survey data.

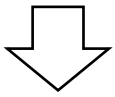
(2) Case Study Research Design

This research design entails the detailed and intensive analysis of a single case or multiple cases. It is said that the exponents of the case study design are often compatible with qualitative methods (e.g. observation and unstructured interviewing) because they are helpful in generating the detailed and intensive data analysis. It is claimed that a case study researcher typically observes the characteristics of an individual unit (Cohen and Manion, 1994).

I conduct case studies to obtain the detailed data that would supplement the quantitative data obtained from the survey as I have mentioned. The survey would collect the data that represents Thai LAOs in general, where the case studies would represent Thai LAOs that are successful in collaborations. The features of my mixed methods research design are presented in Figure 3.2.

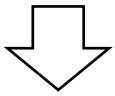
Figure 3.2: Mixed-Methods Research Design

Phase 1 – Features of Collaboration Research question: What is the existing state of Thai LAOs' collaborations for waste management?		
Sub-question 1: What is the national policy context?	Collect qualitative data of national policies on waste management collaborations.	Conduct a case study of national policies and agencies using interviews and reviews of documents.
Sub-question 2: What are the extent, nature and outcome of collaborations across Thai LAOs?	Collect quantitative data on collaborations in a sample of general Thai LAOs.	Conduct a survey of a sample of Thai LAOs using an online questionnaire or sending a hard copy of the questionnaire by post supplemented with interviews.
Sub-question 3: How do individual LAOs manage their waste management collaborations?	Collect qualitative data on collaborations in a sample of individual Thai LAOs.	Conduct three case studies of a sample of individual Thai LAOs using interviews and reviews of documents.



Phase 2 – Collaborative Capacities and Outcomes Research question: How can we explain the forms and outcomes of collaborations by Thai LAOs?		
Sub-question 1: What is the origin of waste management collaborations of Thai local administrative organisations?	Use qualitative data on waste management problems mentioned in national policies on waste management from the case study and quantitative data on local waste management problems from the survey.	Comparative analysis of waste management problems mentioned in national policies and local waste management problems in practice.
Sub-question 2: How have these collaborations developed?		

Sub-question 3: How important are collaborative capacities?	Use quantitative data on collaborative capacities and collaborative outcomes.	Correlation analysis of relationships between collaborative capacities and collaborative outcomes.
	Use qualitative data on local waste management problems and qualitative data on collaborative capacities and collaborative outcomes.	Thematic analysis of case studies on relationships between collaborative capacities and collaborative outcomes.



Phase 3 – Recommendations for Policy and Practice Research question: What are the implications for policy and practice by Thai LAOs and other agencies?		
Sub-question: How can Thai LAOs develop their collaborative capacities for achieving better waste management collaboration outcomes?	Use quantitative data on recommendations for Thai LAOs who have collaborated for waste management already.	Thematic analysis of survey data on recommendations for Thai LAOs who have collaborated for waste management already.
	Use qualitative data on recommendations for Thai LAOs who have collaborated for waste management already.	Thematic analysis of case studies on recommendations for Thai LAOs who have collaborated for waste management already.

3.1.5 Design of Data Collection Instruments

This research uses two major data collection instruments: a questionnaire and topic guide, i.e. the questionnaire is used in the survey of Thai LAOs in general, about their collaborations for waste management, and the topic guide is used in the case study of

national organisations and their public policies related to Thai LAOs' waste management collaborations, and the case studies of individual Thai LAOs and their their waste management collaborations.

(1) Questionnaire

In order to identify the level of administrative collaborative capacity the questionnaire draws on the four sub-types of administrative capacity proposed by Lodge and Wegrich (2004) and Hertie School of Governance (2014), and as discussed earlier in this chapter: delivery, regulatory, coordination and analytical capacity. To ensure that the questionnaire is not overloaded with questions, and thus has a poor response rate, these broad sub-types are expressed in the following way (the letter refers to the sub-type – i.e. D (delivery), R (regulatory), C (coordination), and A (analytical) capacity):

First, there is a group of questions that relate to day-to-day organisational collaborative capacities as follows:

- knowledge and skills of staff(D)
- appropriate workloads of staff (D)
- policies and plans for a collaboration (R)
- regulations and rules to control a collaboration (R)
- publications of information about a collaboration (A)
- frequency of communications with collaborating organisations (C).

Secondly, there are questions that relate to more strategic collaborative capacities concerned with the development and success of the collaboration based on the framework of Sullivan, Barnes and Matka (2006). Four types of strategic collaborative strategies are queried in the questionnaire of this study as follows:

- strategies for obstacles of a collaboration (R)
- strategies for informing responsibilities of collaborating organisations (C)
- strategies for emergency situations (D)
- strategies for creating new ways to make a collaboration efficient (A).

The questionnaire then asks about the outcomes of the collaboration. There are two types of outcome: problem-solving and working relationship outcome based on the framework of Gray (2000), the operationalisation of this framework by Thomson, Perry, and Miller (2008), and the index of items for measuring content and process outcomes of Klijn, Steijn and Edelenbos (2010).

There are six types of problem-solving outcomes that are asked in the survey questionnaire:

- considering solutions to problems emerged in a collaboration case-by-case
- using collective solutions to solve problems emerged in a collaboration
- solving problems emerged in a collaboration effectively
- applying existing solutions to problems that can emerge in a future collaboration
- making the benefits from a collaboration worth its cost

- brainstorming to create new innovations for waste management.

Then there are five types of working relationships outcomes that are asked in the survey questionnaire:

- better working relationships between a LAO and collaborating organisations
- encountering many problems emerged in a collaboration
- solving problems emerged in a collaboration through collective discussions successfully
- communicating with collaborating organisations frequently
- making collaborating organisations satisfied with collective waste management.

(2) Topic Guide or Interview Guideline

There are two topic guides that are used in this research: a topic guide on national policies about waste management collaborations of Thai LAOs for the interviews of major national organisations that are related to those policies, and a topic guide on collaborative capacities and outcomes of the collaboration for the interviews of individual LAOs that are successful in waste management collaborations.

Firstly, the topic guide on national policies about waste management collaborations of Thai LAOs has five groups of questions based on the public policy process as follows:

- policy formulation
- policy implementation
- policy monitoring
- policy evaluation
- policy gap.

Secondly, the topic guide for interviews of individual Thai LAOs to gather data on collaborative capacities and outcomes of collaborations draws on the same theoretical frameworks of the questionnaire because it aims to collect the detailed data to supplement the data obtained from the survey. Therefore, there are three groups of questions to be asked. The first group consists of questions that relate to day-to-day organisational collaborative capacities as follows:

- knowledge and skills of staff (D)
- appropriate workloads of staff (D)
- policies and plans for a collaboration (R)
- regulations and rules to control a collaboration (R)
- publications of information about a collaboration (A)
- frequency of communications with collaborating organisations (C).

The second group consists of questions that relate to more strategic collaborative capacities concerned with the development and success of the collaboration, and there are four types of strategic collaborative strategies that are asked in the topic guide as follows:

- strategies for obstacles of a collaboration (R)
- strategies for informing responsibilities of collaborating organisations (C)
- strategies for emergency situations (D)
- strategies for creating new ways to make a collaboration efficient (A).

After that, the topic guide uses the group of questions about the outcomes of the collaboration that has two types: problem-solving and working relationship outcomes. There are six types of problem-solving outcomes that are asked in the topic guide as follows:

- considering solutions to problems emerged in a collaboration case-by-case
- using collective solutions to solve problems emerged in a collaboration
- solving problems emerged in a collaboration effectively
- applying existing solutions to problems that can emerge in a future collaboration
- making the benefits from a collaboration worth its cost
- brainstorming to create new innovations for waste management.

Then there are five types of working relationship outcomes that are asked in the topic guide as follows:

- better working relationships between a LAO and collaborating organisations
- encountering many problems emerged in a collaboration
- solving problems emerged in a collaboration through collective discussions successfully

- communicating with collaborating organisations frequently
- ensuring collaborating organisations are satisfied with collective waste management.

3.1.6 Sampling Frames

The sampling frame is the listing of the accessible population from which a researcher will draw a sample (Trochim, 2006). For the survey research, the sampling frame is also called the population list (Robson, 2011). For this research, I had to make two sampling frames: a survey sampling frame and a 'case studies of individual LAOs that are successful in waste management collaboration' sampling frame.

(1) Survey Sampling Frame

The sampling frame of the survey is the list of names and contacts i.e. website, e-mail and postal address of all Thai LAOs based on the data available from the official websites of the Department of Local Administration, Ministry of Interior, and the Thailand and Thai LAOs Currently there are 7,851 general LAOs in total (Department of Local Administration, 2015).

(2) Case Studies Sampling Frame

The sampling frame of my case studies is the list of five individual LAOs that are outstanding in waste management and collaborating with local citizens and other organisations or groups in their waste management. This list was derived from the

discussions with a group of Thai experts in waste management and Thai local government. This group is composed of seven people. Three of them are governmental officials who have worked for governmental organisations that created public policies on waste management and have collected data about waste management of LAOs throughout Thailand officially. Three are university lecturers who have completed research about the Thai local government and have supervised Thai LAOs, and one of them is a think tank researcher who has done research on waste management and the Thai local government. The list is composed of Bangkok Metropolitan Administration (BMA), Khon Kaen City Municipality, Phang Khon Sub-District Municipality, Phitsanulok City Municipality, and Sikhio Sub-District Municipality.

3.1.7 Sampling

Sampling is the process of selecting units from a population of interest (Trochim, 2006). Researchers must take sampling decisions early in the overall planning of a survey since the questions to do with the sampling arise directly from the second preliminary consideration. Moreover, it is not always possible or practical to obtain measures from a population because of expense, time and accessibility factors. Thus, researchers endeavour to collect information from a subset of the population in such a way that the knowledge gained is the representative of the total population under study (Cohen and Manion, 1994). In this research, I undertake two samplings: survey and case studies sampling.

(1) Survey Sampling

The sampling method of the survey that was used for my research is the 'stratified sampling' (also known as 'stratified random sampling'). It is a type of sampling which ensures that key sub-populations are included in a sample. Researchers divide a population into sub-populations (or strata) based on key independent variables, or such that each unit belongs to a single sub-population (or stratum). We then take an unbiased random sample from each of those subpopulations. For example, the population is divided into rural and urban sub-frames, or into 18-34, and 35-49 key age groups (Bernard, 2011; Teddlie and Yu, 2007).

The reason I used the stratified sampling method is because the nature of the population of this study is already stratified by the size of area. That is, a provincial administrative organisation (PAO) is a LAO with the area covering the whole area of a province (Sala, 2013), a municipality is a LAO which covers the area of a district, and a sub-district administrative organisation (SAO) is a LAO which covers the area of a sub-district as presented in Table 3.2.

Table 3.2: Types of Thai Local Administrative Organisations

Types of Thai LAOs	Responsible Areas
PAO	Whole area of a province.
Municipality	Area of a district.
SAO	Area of a sub-district.

Moreover, a municipality has been divided into three sub-types by the size of population and density as follows (Sala, 2013):

(1) a city municipality has 50,000 citizens or above and the density is at least 3,000 citizens per km^2,

(2) a town municipality has 10,000 to 49,999 citizens and the density is at least 3,000 citizens per km^2,

(3) a sub-district (tambon) municipality has 7,000 to 9,999 citizens and the density is 1,500 citizens or above per km^2 as presented in Table 3.3.

Table 3.3: Sub-Types of Municipalities

Sub-Types of Municipalities	Population (Citizens)	Density (Citizens Per km^2)
City municipality	50,000 or above	3,000
Town Municipality	10,000 – 49,999	3,000
Sub-District (Tambon) Municipality	7,000 – 9,999	1,500

The stratified sampling will give the opportunity for the population that distribute in different strata to be selected with the appropriate amounts.

(2) Case Studies Sampling

Sampling of the case studies in this research is 'purposive sampling' (also called 'judgemental sampling'). It is a type of non-probability sampling and uses the researcher's deliberate choice of an informant due to the qualities the informant possesses (Tongco, 2007). There is no overall sampling design that tells researchers how many of each type of informants they need for a study. They take what they can get (Bernard, 2011). The disadvantage of this technique, similar to other non-probability techniques, is that it introduces the biases of researchers (Social and Community Planning Research, 1972) to the selection of the samples. Although purposive sampling involves biases of a researcher, its advantage can outweigh the disadvantage. Allen (1971) argued that not everyone who a researcher can pick up or encounter, is a satisfactory informant. He stated,

> "…If we want to study only the older segment of the speech community, we naturally want an older person; if we want the younger segment, we need a younger person."

Therefore, it can be implied that the selection of the research informants should be based on the rationale that they are matched with the purpose of the study. I use this sampling technique for the case-study design because I have a clear objective to use the data collected from the case studies to supplement the data from the survey.

There are five individual LAOs in my case studies sampling frame as mentioned in Section 3.1.6. Due to the limited time and resources available for conducting fieldwork, the researcher was unable to study all of these five individual LAOs. Thus, l selected three individual LAOs from the case studies sampling frame through two steps as follows:

First, the Bangkok Metropolitan Administration (BMA) was selected because there are two major types of LAOs in Thailand consisting of special LAOs and general LAOs. Bangkok Metropolitan Administration (BMA) is the only special LAO in the case studies sampling frame. For this reason, it was selected in order to represent special LAOs.

The second selection was two individual LAOs from the remaining four individual LAOs that are general LAOs in the case studies sampling frame. The criterion that was used for selecting individual LAOs was selecting those that have received the King Prajadhipok's Institute awards or the golden King Prajadhipok's Institute awards for LAOs on networking with the public sector, the private sector and the civil society. 'King Prajadhipok's Institute'

is a juristic entity under the supervision of the President of National Assembly of Thailand. It works as a democratic development institution. King Prajadhipok's Institute has realised the importance of local government development. Therefore, it has sponsored the King Prajadhipok's Institute awards to LAOs that maintain the best practices in three categories: transparency and promotion of people's participation; strengthening peace and harmony; and networking with the public sector, the private sector and the civil society every year since 2001 (King Prajadhipok's Institute, 2019a).

The King Prajadhipok's Institute awards on networking with the public sector, the private sector and the civil society have an objective to encourage LAOs to collaborate with networks from the public sector, the private sector and the civil society in their responsible areas to achieve the collaborative goal of sustainable development. 'Network' in this context means groups or organisations that exchange data and information to each other and operate in collaborative activities. Each of these groups and organisations has autonomy to operate to accomplish their own missions (King Prajadhipok's Institute, 2019b).

LAOs who have been awarded the King Prajadhipok's Institute awards on networking with the public sector, the private sector and the civil society, have been evaluated to have the best practices through five categories of indicators as follows (King Prajadhipok's Institute, 2019b):

1.) Basic indicators

These indicators are indicators to evaluate LAOs from their compulsory missions or their activities that are required to operate by authority, laws and regulations. For instance, letting representatives of local citizens participate in LAOs' local development committees, publishing their revenue and expense records to the public, and making procurement operation plans. The basic indicators evaluate how LAOs open opportunities for their local citizens to monitor their work, and participate in their work that is the foundation for networking with the civil society.

2.) Organisational management for networking with the public sector, the private sector and the civil society indicators

These indicators are indicators to evaluate LAOs' leadership, priority, and preparation for achieving the missions on networking with other groups or organisations in terms of staff, budgets and working mechanism. The indicators consider LAOs' executive visions, policies and strategies on networking, informal and formal collaboration with other organisations within Thailand and foreign countries, membership of groups or associations about local development, and database of their networks and network development.

3.) Provision of projects and public services responding to new challenges indicators

These indicators are indicators to evaluate LAOs' proactive work responding to new challenges that affect local citizens; and imply the management that emphasises qualities of public services, and creative solutions to problems of local citizens in their responsible areas.

For instance, services for disadvantaged individuals, uses of alternative or renewable energy, disaster prevention and mitigation, revitalisation of local wisdom, and preparedness for the ASEAN (Association of Southeast Asian Nations) community.

4.) Capacity building and empowerment of local citizens indicators

These indicators are indicators to evaluate LAOs' activities on capacity building and empowerment of local citizens such as general learning support, specialised capacity building, public consciousness building, collective value creation, and local citizen empowerment. The reason is that local citizens' capacities and empowerment are key factors that well support people participation in local government affairs and working together as networks.

5.) Implementation of collaborative projects between the public sector, the private sector and the civil society networks indicators

These indicators are indicators to evaluate outstanding projects or activities of LAOs on networking with the public sector, the private sector and the civil society as concrete examples of their project management and implementation for selecting the best practices from participating LAOs.

The golden King Prajadhipok's Institute awards have been initiated in 2006 as motivations for LAOs who have received the King Prajadhipok's Institute awards to continuously develop their work to meet local citizens' needs and create innovations on local

administration. These awarded LAOs will be role models for other LAOs in Thailand. The golden King Prajadhipok's Institute awards are sponsored to LAOs every 2 years (King Prajadhipok's Institute, 2019a).

The golden King Prajadhipok's Institute awards on networking with the public sector, the private sector and the civil society have two criteria to evaluate LAOs to be awarded: a basic criterion and an innovation criterion. The basic criterion is composed of two categories of indicators as follows (King Prajadhipok's Institute, 2019c):

1.) Corruption indicators

LAOs that will be awarded must not have had a corruption case or a corruption lawsuit against them, and their executives are not being considered to have their rights removed to run for political offices. They are evaluated through information from the Department of Local Administration, the State Audit Office of the Kingdom of Thailand, the Office of the National Anti-Corruption (ONACC), the Office of Public Sector Anti-Corruption Commission (PACC), and the Office of The Election Commission of Thailand.

2.) Implementation of duties indicators

LAOs that will be awarded must implement their duties by authority, laws and regulations such as providing rooms that have information services to local citizens with updated information and that are user friendly; creating reports about results of implementation of their duties and revenue and expense records, publishing these reports and records to local

citizens; publishing their procurement operations on their promotional boards or official internet websites to local citizens, and other duties by law.

The innovation criterion is composed of seven indicators as follows (King Prajadhipok's Institute, 2019c):

1.) Numbers of LAOs' outstanding networks or network activities must not be too small. These networks and network activities must show how LAOs network with the public sector, the private sector and the civil society.

2.) LAOs' outstanding networks or network activities must be continuous, not contemporary or ad hoc.

3.) LAOs' outstanding networks or network activities must show creativity or innovation. If these networks or network activities are similar to those belonging to others, LAOs must be able to explain how they are different from others, and what their characteristics are.

4.) LAOs' outstanding networks or network activities must be initiated by LAOs themselves.

5.) LAOs' outstanding networks or network activities must show concrete evidence of operations.

6.) LAOs' outstanding networks or network activities must show their partnership or clear collaboration, not being driven by only one organisation.

7.) LAOs' outstanding networks or network activities must be different from those that have been evaluated when LAOs received the King Prajadhipok's Institute awards in terms of being new networks or network activities or having been developed from previous ones.

Both the King Prajadhipok's Institute awards and the golden King Prajadhipok's Institute awards for LAOs are well accepted on a national level in Thailand. For this reason, individual LAOs who have received these awards on networking with the public sector, the private sector and the civil society are considered to be successful in their collaboration with other groups, organisations or sectors. As a result, I have selected two individual LAOs from the case studies sampling frame as my case studies consisting of the Phitsanulok City Municipality who has received the King Prajadhipok's Institute awards on networking with the public sector, the private sector and the civil society in 2013 (King Prajadhipok's Institute, 2019d), and the Khon Kaen City Municipality who has received the King Prajadhipok's Institute awards on networking with the public sector, the private sector and the civil society in 2011 and 2014 (King Prajadhipok's Institute, 2019e), as well as the golden King Prajadhipok's Institute awards for LAOs on networking with the public sector, the private sector and the civil society in 2016 (King Prajadhipok's Institute, 2019f).

The selection of the case study sampling frame and the sample itself are both dependent on expert peer assessment of individual LAOs. Although this method may be subject to bias on the part of the experts, there are at least explicit criteria for the two awards. Also, it is the most robust method available in the absence of any other data on LAOs' waste management collaborations.

3.1.8 Samples

A sample is a small-scale representation or a kind of miniature model of the population from which it was selected (Hedges, 2004). Yang (2010) argues that either because we cannot

study the whole population directly or because there is no need to do so, we draw a sample from the population in the hope that the information drawn from the sample would still allow us to say something about the population. In this research, there are two sets of samples: survey samples and case studies samples.

(1) Survey Samples

In order to calculate the sample of the survey, two steps were undertaken: Finding out the minimum sample size that can represent the population and consider the response rate of the previous literature that is related to my research.

(1.1) Finding out the minimum sample size that can represent the population

The total number of general Thai LAOs is 7,851 organisations (Department of Local Administration, 2016). Using the standard table for determining sample size from a given population (Krejcie and Morgan, 1970), the table will give the minimum sample size that can represents the whole population as presented in Table 3.4.

Table 3.4: Table for Determining Sample Size from Given Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note. -*N* is population size, *S* is sample size (Adapted from Krejcie and Morgan, 1970, p. 608)

The population of Thai LAOs is 7,851 or approximately 8,000 organisations. According to Table 3.4, if *N* is 8,000, *S* should be 367. I use the approximate number because Table 3.4 gives the minimum sample size. This means that I can use the bigger sample size than Table 3.4's given number since the bigger the sample size, the more accurate it is in representing the population. Therefore, I assume that the minimum of the sample size of my study is '400'.

(1.2) Considering the response rate of the previous literature that is related to my research

There is an example of a national-level research which collects data from Thai LAOs. In 2010, Krueathep conducted a survey to collect data from 2,008 Thai LAOs. He sent the questionnaires to those organisations by mail. After two months, the questionnaires were returned. The response rate was 48.4 per cent (Krueathep, 2013). Since he is a well-known professor of a leading university in Thailand, it could be implied that the response rate to my survey must be much lower than his survey got. Therefore, I estimate that the response rate to my survey will be approximately 20 per cent. This means that:

If I send out 100 questionnaires, the returned questionnaires are 20 questionnaires. I need to send out x questionnaires, to get 100 returned questionnaires (When x is the number of questionnaires to be sent out equals the number of the sample).

The ration equation would be as follows:

$100/20 = x/100$

$10{,}000 = 20\ x$

x = 500

Therefore, if I need 400 returned questionnaires, I need to send out the questionnaires calculated from the following ratio equation:

If I need 100 returned questionnaires, I need to send out 500 questionnaires;

If I need 400 returned questionnaires, I need to send out [(500 ÷ 100] 400 = 2,000 questionnaires. That is, the sample of my survey is approximately 2,000 of Thai LAOs.

(2) Case Studies Sample

As explained in Section 3.1.7, the sample of the case studies is three of Thai individual LAOs consisting of the Bangkok Metropolitan Administration (BMA) which is a special LAO; the Phitsanulok City Municipality, and the Khon Kaen City Municipality which are general LAOs. They have been selected from the list of five individual LAOs that are outstanding in waste management and collaborating with local citizens and other organisations or groups in their waste management, derived from the discussions with Thai experts in waste management and Thai local government, through two steps. The first step is selecting a special LAO to represent the population of special LAOS. Then the second step is undertaken by selecting two general LAOs who have received the King Prajadhipok's Institute awards or the golden King Prajadhipok's Institute awards for LAOs on networking with the public sector, the private sector and the civil society to represent the population of general LAOs.

3.1.9 Research Methods

A research method simply is a technique for collecting data. It can involve a specific instrument, for instance, a self-completion questionnaire, a structured interview schedule and participant observation (Bryman, 2012). There are two sets of research methods in this research: survey and case studies research methods.

(1) Survey Research Method

The survey uses the self-completion questionnaire as presented in Appendix A1. The self-completion questionnaire (Robson, 2011) asks the respondents to fill in the answer themselves. Most of the questions in the questionnaire of this study ask the respondents to rank their answers through the 'Likert's scale.' It is a five-point scale that is the most commonly used in scaling (Bernard, 2011). The example of the Likert's scale that would be used in my self-completion questionnaire is presented in Table 3.5.

Table 3.5: Example of Likert's Scale in Questionnaire

'Our organisation has enough regulations to control the implementation of waste management collaborative projects.'

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

(2) Case Studies Research Methods

There are two research methods that are employed in this research: the semi-structured interview and document analysis.

(2.1) Semi-Structured Interview

The semi-structured interview is based on the use of the interview guide that is a written list of questions and topics that need to be covered in a particular order (Bernard, 2011). The reason why this method was selected is because the data collected from the case studies is used to supplement the data collected from the survey. Thus, these two data sets need to have the same themes and share the same patterns. However, it is more flexible than the structured interview. Therefore, it opens an opportunity for the informants to tell stories that are not in the topic guide or interview guideline, but that may be interesting for the researcher and could be included in the research. The example of a question in a topic guide that would be used in a semi-structured interview of this case study is presented in Table 3.6.

Table 3.6: Example of Question in Topic Guide

Questions for an Individual LAO	
Number	Question
1	What is the scope of 'waste management' for your waste management collaboration?

(2.2) Document Analysis

Document analysis is a systematic procedure for reviewing or evaluating both printed and electronic (computer-based and internet-transmitted) documents. The documents that may be used for systematic evaluation as part of a study take a variety of forms including advertisements, agendas, attendance registers, minutes of meetings, manuals, background papers, books and brochures, diaries and journals, event programmes; letters and memoranda, maps and charts, newspapers, press releases, programme proposals, application forms, summaries, radio and television programme scripts, organisational or institutional reports, survey data and various public records.

The analytic procedure entails finding, selecting, appraising and synthesising data contained in documents. Document analysis yields data, excerpts, quotations, or entire passages. The rationale for document analysis is that it is often used in combination with other qualitative research methods as a means of triangulation. That is to seek convergence and corroboration by different data sources and methods. By examining information collected through different methods, the researcher can corroborate findings across data sets and consequently reduce the impact of potential biases that can exist in a single study (Bowen, 2009).

This research method is employed in the case studies because I would like to study official documents of Thai LAOs that published information about projects, programmes, or activities that are relevant to collaboration; for instance, annual reports, budget reports and meeting notes so that they could be used to triangulate with the data collected from the interviews to cross check the accuracy of data.

3.1.10 Data Analysis

There are two sets of data analysis in this research: survey and case studies data analysis:

(1) Survey Data Analysis

The survey data would be analysed through two types of data analyses: statistical and thematic analysis.

(1.1) Statistical Analysis

The statistical analysis of the survey consists of two types of statistics: descriptive and inferential statistics.

Firstly, descriptive statistics are concerned with the interpretation and summarisation of 'frequency distributions' – i.e. the number of cases in the categories of a variable, and 'percentage distributions' – i.e. the percentage of cases in the categories of a variable. Such distribution may involve analysing only one variable (univariate), two variables (bivariate) or three or more variables (multivariate) in conjunction (Rose and Sullivan, 1996). I would like to use this technique of analysis to show the pattern of data collected from the survey, for example, percentages of each type of collaborative capacities, and the means of levels of collaborative capacities. Secondly, inferential statistics attempt to make generalisation from a limited body of data such as a sample of the whole population from which it was drawn. They allow us to determine the extent to which relationships appearing in the sample are also likely to appear in the population concerned, on the basis of the mathematical probability theory (Rose and Sullivan, 1996). I use this type of data analysis in the case that

the data can show the relationship between variables. For example, the relationship between the implementations of developmental strategies and the increase of collaborative capacities. Some statistical analysis techniques would give the ability to forecast or predict the value of data, for example, the 'regression analysis.'

It refers to a set of techniques for predicting a dependent variable using one or more independent variables. It is essentially about creating a model for estimating one variable based on the values of other variables. Simple linear regression is regression analysis in the most basic form. It is used to predict a dependent variable from one continuous independent variable. Furthermore, Simple linear regression's correlations can show the strength and direction of an association between independent and dependent variables. There are Pearson correlation and r2 (r square). In terms of the Pearson correlation, if the value of the correlation is positive (+), it means the relationship between the independent and dependent variables is in the same direction. For example, the greater the independent variable, the greater the dependent variable. Furthermore, if the value of the correlation is closer to '1,' the relationship between independent and dependent is strong. In contrast, if the value of the correlation is negative (-), the relationship between independent and dependent variables is reverse. That is when one variable increases, another variable will decrease. In addition, the value of r2 can suggest the percentage of the variance that the independent variable has against the independent variable (Frost, 2013).

(1.2) Thematic Analysis

Thematic analysis is an analytic method for identifying, analysing, and reporting patterns or "themes" within qualitative data. A theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within a data set. Thematic analysis is theoretically flexible because the search for and the examination of patterning across languages does not adhere to any particular theory framework for human beings, experiences or practices. It is suitable for a wide range of research interests, theoretical perspectives, and research questions. It could be used to analyse primary or secondary data, and large or small data-sets, and could produce data-driven or theory-driven analyses. There are six phases of thematic analysis:

phase 1 – familiarising the researcher's self with their data

phase 2 – generating initial codes

phase 3 – searching for themes

phase 4 – reviewing themes

phase 5 – defining and naming themes

phase 6 – producing the report (Braun and Clarke, 2006; Clarke and Braun, 2013). This data analysis method will be used in my thesis to analyse the data obtained from the survey on 'how Thai LAOs who have already collaborated develop their collaborations for waste management to become efficient.'

(2) Case Studies Data Analyses

The case studies data would be analysed through two types of data analysis techniques: thematic and comparative analysis.

(2.1) Thematic Analysis

This data analysis technique has been discussed in the survey data analyses section already. It will also be used to analyse the data obtained from the case studies on the same topic as the survey's topic. That is, 'how Thai LAOs who have already collaborated develop their collaborations for waste management to become efficient.' The data obtained from the case studies is aimed to supplement the data obtained from the survey which is not so rich in details.

(2.2) Cross-Case Analysis

Cross-case analysis is a research method that facilitates the comparison of 'commonalities' and 'differences' in units of analyses in case studies such as events, activities and processes. It allows the researcher to compare cases from one or more settings, communities, or groups. It is a mechanism for analysing existing case studies to make knowledge that was gained from these cases usable for broader purposes (Khan and Van Wynsberghe, 2008). This data analysis technique is based on the perspective of the case-orientated strategy that a case is a distinct and singular entity. It is meaningful and has complex configurations of events and structures. The way to understand a case is trying to understand it on its own terms (Ragin, 1997). This data analysis technique is used to compare the data obtained from the case studies of Thai individual LAOs that are successful in waste management collaborations to provide the systematic implications of the findings from the cases.

3.1.11 Research Ethics

"Ethical research concerns what researchers ought and ought not to do in their research and research behaviour." (Cohen, Manion and Morrison, 2018, p. 111). Cohen, Manion and Morrison (2018) suggests that codes of practice, ethical guidelines, ethics committees and institutional review boards, legislation, regulations and regulatory frameworks will raise issues for researchers to consider, and also provide advice on what to do and what not to do for them. Nevertheless, ethical issues are quite individualistic because researchers make decisions on ethical issues on a case-by-case basis. They will then be responsible for the decisions they make, and the actions connected with their decisions individually (Brooks, te Riele and Maguire, 2014, p. 153; Cohen, Manion and Morrison, 2018, p. 111). Therefore, ethical issues of my research can be somewhat different from other researchers' ethical issues. This section discusses three topics which are related to my research ethics: ethics process, ensuring good research ethics practice, and issues arisen when conducting the research and how to deal with these issues.

(1) Ethics Process

My research design was approved by the University of Birmingham's Ethical Review Committee before I conducted my research project. Since my research is a mixed-method research as I have discussed in Section 3.1.4-Research Designs of this chapter, I had to apply for the university's ethical review process for the survey and the case studies separately. The application for the survey was done before the application for the case studies because the case studies were aimed to obtain results to supplement the results from the survey.

Moreover, the survey is a national-scale study which took much more time than the case studies did so it needed to be approved earlier. The important details which had been asked in the ethical review application forms for the survey and the case studies are, for example, the funding source and its status in light of the research project, a summary of the research project, research methodology, specification of research participants, recruitment of research participants, how to obtain consents from those research participants, participant feedback, participant withdrawal, confidentiality, storage of the research data, and potential risks to individuals, environment and society.

(2) Ensuring Good Research Ethics Practice

There are three issues where I ensured that my research followed good research ethics practices: consent from research participants, confidentiality, and considering the potential risks to individuals, environment and society. The first issue is on consent from research participants. Consent in this context refers to 'informed consent.' Diener and Crandall (1978, p.57) define informed consent as "those procedures for individuals to choose whether or not to participate in the research, once they have been told what it is about and what it requires." In addition, Cohen, Manion and Morrison (2018) claim that consent protects and respects the right of self-determination of research participants, and places some of the responsibility on them if anything goes wrong in the research (p. 122). In my research, research participants in both the survey and the case studies were given the participant information which was about the research project, contact details of my academic supervisor and me, how research participants would participate in the research, rights of research participants and how to withdraw from this research project to ensure they understand the research and their participation.

Then they were given the consent forms in different ways based on their participation in the research. That was, survey participants were given an on-line consent form (if they selected to do an on-line questionnaire) or a written consent form at the beginning of a questionnaire (if they selected to do a paper questionnaire which was sent off by post), when case study participants were given only a written consent form. If they agreed to participate in the research, they needed to complete an on-line consent form or sign their names in a written consent form. However, there was a great reluctance by some of my research participants to sign the consent form. As a result, I had to use another way to obtain their consent instead. This issue will be discussed in more detail in the next section.

The second issue was confidentiality. In the survey, confidentiality was ensured by making research participants anonymous. In addition, notes from each interview of the case studies were given a code number with a separate link to link those numbers to the research participants. Quotes from the interviews were non-attributable, and any references to specific features that could identify the interviewees individually were edited out or anonymised. Moreover, the data obtained from both the survey and the case studies was stored in a confidential way. That was, the data was stored at the BEAR Datashare which had password protected access, only authorised persons and I were allowed to access the data for verification purposes. The final issue was potential risks. My research clearly declared to the university's ethical review committee that there were no risks to individuals, environment and society.

(3) Issues Arising When Conducting the Research and How to Deal with These Issues

There were two important issues that arose when I was conducting the research: a case study issue and a survey issue. The first issue was that most Thai government officials, who were interviewees for my case studies, felt reluctant to sign the consent forms because participating in the research was not a part of their work. Therefore, I provided the information which was written in the participant information sheet to them verbally, then requested their verbal consent if they agreed to be interviewed. The verbal consent was requested again before I either recorded the interviews or noted those interviews in my field notes. The university's ethical review committee agreed on using the verbal consents.

Additionally, some respondents of the survey informed me that they would like to talk about their waste management collaborations in order to give clearer information than the answers they had given in the questionnaires. Thus, I asked them to participate in telephone interviews in which I applied the same verbal consent procedures as in the case study interviews. When they agreed, I asked them for their permission to take notes from the interviews. Moreover, I used the same method to ensure confidentiality as I did with the interviewees of the case studies. That was, notes from these interviews were given a code number with a separate link to link the code numbers to the telephone interviewees. The quotes from the telephone interviews were also non-attributable and any references to specific features that could identify the telephone interviewees individually were edited out or anonymised.

Conclusion

This chapter discussed the research strategies, research designs, sampling frames, research methods, data analyses and research ethics. The purpose of this research is to find out the existing state of knowledge on Thai LAOs' involvement in collaborations, the best way to conceptualise, collect, and analyse data on Thai LAOs' collaborations for waste management, the existing state of Thai LAOs' collaborations for waste management, the explanation of the forms and outcomes of collaborations by Thai LAOs, and the implications for policy and practice by Thai LAOs and other agencies. It emphasises collaborative capacities of Thai LAOs in the administrative capacity side in terms of the relationships between collaborative capacities and outcomes of the collaborations for waste management in two types: problem-solving and working-relationship. This emphasis leads to the conduct of the survey study. The research then emphasises the collaborative capacities that actors within the collaborations for waste management of Thai LAOs think necessary for achieving the efficient collaborations. This leads to the conduct of the case studies.

The sampling frame of the survey is all of the 7,851 general Thai LAOs, from which 2,000 will be randomly selected. The sampling frame of the case studies consists of five Thai LAOs that are outstanding in waste management and collaboration with other sectors according to the comments of experts in Thai waste management and the reviews of national and international awards on waste management and collaboration that Thai LAOs received. Then three individual LAOs would be purposively selected from this list to be the subjects of the case studies. The survey uses a self-completion questionnaire when the case studies rely on the topic guides for the semi-structured interviews supplemented by the document study and direct observation.

The data analyses of the survey are based on the descriptive and inferential statistical analysis techniques which are highlighted by the correlation analyses to present the relationships between collaborative capacities and outcomes of the collaborations. The qualitative data obtained from the case studies will be analysed through the thematic analysis. Then the cross-case data analyses will be made to find out common features and difference among the cases, then formulate the recommendation for policy and management, and future research. In terms of research ethics, this research passed the university's ethical review process for both the survey and the case studies part. It followed good research ethics practice especially the ethical issues on informed consent, confidentiality, and potential risks to individuals, environment and society. In the next chapter, the results of the survey will be discussed.

CHAPTER 4

RESULTS OF THE SURVEY STUDY

Introduction

This chapter discusses the results of the survey study. The survey used self-completion questionnaires which were electronic questionnaires (online or internet questionnaires) sent off via e-mail, and paper questionnaires sent off through the post, to 2,000 randomly selected LAOs in Thailand. I used the online questionnaires because their costs were low, and they could reach LAOs located far away from my address immediately. However, I have had to send several paper questionnaires by postal mail as well, to Thai LAOs that might be potential respondents because not one LAO completed the online questionnaire for me, some LAOs just contacted me for more information about the survey. Therefore, I sent paper questionnaires and the official letters that introduced myself and the survey, and requested the research participation to the LAOs by post. The number of returned questionnaires was 428. Thus, the response rate of paper questionnaires was 21.4 %.

The online questionnaires that generated 100% of nonresponses could be explained by the literature. Cornish (2002) points out that nonresponses can arise in two basic ways: noncontact of selected units, and full or partial refusal to participate. First, noncontact of selected units is an inability to contact units or respondents selected in a survey. Second, fully or partially refusal to participate is that respondents refuse to cooperate and provide some or all of the information requested once contacts have been made with them.

The nonresponses to my online questionnaires arose in the form of noncontact of selected respondents. E-mail is not the formal way to contact governmental organisations for the first time. This is due to Thai governmental organisations' regulations on contacts between Thai citizens and Thai governmental organisations. The formal way to contact LAOs which are also governmental organisations is by post with an official letter. Because of the non-responses to my e-mails, I then sent postal letters to introduce myself and my research project, and to request for the research participation.

Fowler (2002) states that one of the best ways to minimise survey nonresponse is to use more than one mode to collect data because mixing modes can enable researchers to reach respondents who are inaccessible by a single mode. I have followed this advice by sending the questionnaires to the LAOs by email and by postal mail as mentioned earlier. There are studies showing that in general, postal mail surveys generate a higher response rate than e-mail surveys (Hoonakker and Carayon, 2009; Leece et al., 2004). For example, the study of Leece et al. (2004) showed that the response rate of online questionnaires sent to respondents by e-mail was lower than paper questionnaires sent to respondents by conventional postal mail although the online questionnaires took less time and eliminated the inconvenience of dealing with paper and posting of the paper questionnaires.

Moreover, Hoonakker and Carayon (2009) points out several computer-related issues that could make the response rate of online questionnaires low. The first issue is 'computer security.' Online surveys cannot reach potential respondents because of computer security systems which have been set up to prevent spam and viruses. In addition, the computer

security systems at the organisational level may prevent the e-mails inviting the persons to participate in the online survey to reach the potential respondents if a researcher does not notify the organisation where the study is conducted and ask for their cooperation.

The second issue is 'computer illiteracy.' Many respondents feel more confident with postal mail surveys because they do not know how to respond to the invitation to participate in online surveys. The next issue is 'perceived difficulty or uneasiness.' If potential respondents have perceived difficulty or uneasiness in completing online questionnaires, this may be responsible for lower response rates in online surveys. The forth issue is 'non-deliverability.' Some people have an e-mail address but do not know how to use it, change e-mail address without a follow-up, or have several e-mail addresses but not all of them are checked on a regular basis. These issues are also possible reasons to explain why the response rate of my online questionnaires was nil.

In case of my paper questionnaires, nonresponses arose in terms of the complete refusal to participate. One reason for nonresponse was that the particular LAOs did not have a waste management function. For example, two PAOs called me after they had received the questionnaires by post to inform me that they were not able to answer the questionnaires because they did not have a waste management collaboration. In their provinces, waste management collaborations were municipalities' and SAOs' responsibilities.

Besides, some LAOs contacted me when they wanted to inform me about how or when they would return the questionnaires. Some of these LAOs said that they would like to talk more

about their waste management collaborations. Therefore, I asked them whether they voluntarily agreed to have telephone interviews and asked for their permission to take notes from those interviews. As a result, I interviewed nine LAOs.

The results of the returned questionnaires and the telephone interviews are presented in three parts: characteristics of collaborations for waste management of Thai LAOs, collaborative capacities of LAOs and outcomes of collaborations for waste management, and relationships between collaborative capacities and outcomes of collaborations for waste management.

4.1 Characteristics of Collaborations for Waste Management of Thai Local Administrative Organisations

There are four characteristics of collaborations for waste management of Thai LAOs: collaborating and non-collaborating LAOs, lengths of collaboration, members of collaborations and forms of collaborations.

4.1.1 Collaborating and Non-Collaborating Local Administrative Organisations

The result of the survey (Table 4.1) showed that 419 (97.9 %) of responding LAOs had been collaborating for their waste management. Although the aim of the survey was to study about collaborations for waste management of Thai LAOs, its result also showed the total number of responding LAOs that did not collaborate with other organisations on the purpose of waste management as nine (2.1 %). In addition, Table 4.1 showed that a very high proportion of

all types of LAOs responding to the survey reported that they were involved in collaborations for waste management; namely 38 (92.7%) of PAOs, 14 (100%) of city municipalities, 80 (98.8%) of town municipalities, 162 (98.2%) of sub-district (tambon) municipalities, and 125 (98.4%) of SAOs. They became the respondents whose scores would be analysed in next steps.

Table 4.1: Collaborating and Non-Collaborating Local Administrative Organisations by Types of Local Administrative Organisations

Collaborating or Non-Collaborating	**Types of LAOs**					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
Collaborating						
Number	38	14	80	162	125	419
% within each type	92.7%	100%	98.8%	98.2%	98.4%	97.9%
Non-Collaborating						
Number	3	0	1	3	2	9
% within each type	7.3%	0%	1.2%	1.8%	1.6%	2.1%
Total						
Number	41	14	81	165	127	428
% within each type	100%	100%	100%	100%	100%	100%

4.1.2 Lengths of Collaborations

The data in Table 4.2 showed that the largest group of LAOs (202 or 48.2% of responding LAOs) had had their collaborations for waste management for five years or over. Although Thailand has implemented the Private Investment in State Undertaking Act of B.E. 2556 in 2013 and has implemented the Master Plan and Road Map of Waste Management in 2016 to open opportunities for LAOs to collaborate with other sector organisations by law, the survey result showed that LAOs had had collaborations for waste management before these legislations came into place.

Table 4.2: 'How long has your local administrative organisation collaborated with other organisations for waste management?'

Lengths of Collaborations	**Types of LAOs**					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
Less than 2 years						
Number	6	0	2	34	51	93
% within each type	15.8%	0%	2.5%	21.0%	40.8%	22.2%
2 to 4 Years						
Number	12	1	11	53	47	124
% within each type	31.6%	7.1%	13.8%	32.7%	37.6%	29.6%
5 years or over						
Number	20	13	67	75	27	202
% within each type	52.6%	92.9%	83.8%	46.3%	21.6%	48.2%
Total						
Number	38	14	80	162	125	419
% within each type	100%	100%	100%	100%	100%	100%

4.1.3 Members of Collaborations

Table 4.3: 'What are the organisations that your local administrative organisation collaborates with for waste management?'

Other Members of Collaborations	Types of LAOs					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
Local People						
Number	2	2	17	47	56	124
% within each type	5.3%	14.3%	21.3%	29.0%	44.8%	29.6%
National Organisations						
Number	12	3	14	26	17	72
% within each type	31.6%	21.4%	17.5%	16.0%	13.6%	17.2%
Other LA						
Number	6	0	3	21	18	48
% within each type	15.8%	0%	3.8%	13.0%	14.4%	11.5%
Private Organisations						
Number	2	3	10	5	4	24
% within each type	5.3%	21.4%	12.5%	3.1%	3.2%	5.7%

Academic Institutes						
Number	3	0	5	6	2	16
% within each type	7.9%	0%	6.3%	3.7%	1.6%	3.8%
NGOs						
Number	0	0	0	1	0	1
% within each type	0%	0%	0%	0%	0%	0.2%
All of the Above						
Number	6	4	15	25	7	57
% within each type	15.8%	28.6%	18.8%	15.4%	5.6%	13.6%
Others						
Number	7	2	16	31	21	77
% within each type	18.4%	14.3%	20.0%	19.1%	16.8%	18.4%
Total						
Number	38	14	80	162	125	419
% within each type	100%	100%	100%	100%	100%	100%

According to the survey results in Table 4.3, LAOs chose to collaborate with other organisations as other members of collaborations in two types: binary and multi-member collaborations.

(1) Binary Collaborations

In this type, a LAO chooses to collaborate with one other organisation. The data in Table 4.3 shows that the group that LAOs chose to solely collaborate with most often was local people. In total, there were 124 (29.6%) of responding LAOs that implemented their waste management collaborations with people in their localities. The smaller LAOs andSAOs (44.8%) and sub-district municipalities (29.0%) were much more likely to collaborate with local people than the larger ones: town municipalities (21.3%), city municipalities (14.3%) and PAOs (5.3%). For example, the Number 108 SAO collaborated with local people to create a model village of effective waste management. A SAO senior official explained about this collaboration that:

> "In this village, people were educated about waste separation at source. They were encouraged to sell waste that could be reused or recycled to a village's waste bank. As a result, nearby villages were interested to implement the same policies since they had seen that the model village could significantly reduce the amount of waste, and villagers could generate incomes from waste. After that, we asked local people to help separate their waste at source. However, we refused to dispose organic waste for people in this area and told local people that it was a duty of each household to dispose organic waste. We would collect only reused or recyclable waste for them," (Interview with the Number 108 SAO senior official, 16/06/2017).

Interestingly, the Number 110 SAO created a waste bank for local people. This waste bank was managed by the SAO's fund. The process of the waste bank was that local people sold their reusable and recyclable waste to the waste bank. After that, the waste bank would sell

the waste to a private organisation. The incomes from selling waste would be collected into the fund. Local people who sold waste to the waste bank would receive 10,000 baht from the fund when a member of their families died, for holding a funeral. The Number 111 SAO also maintained a waste bank, but its processes were different from the processes of the Number 110 SAO's waste bank. That was, people would sell reusable and recyclable waste to the waste bank. Then, the waste bank would sell the waste to a private organisation. The incomes from selling waste would be allocated in local people's waste bank books in accordance with the amounts of their sold waste. People could use these book banks to withdraw cash from the waste bank.

However, there were several reasons that made local people did not want to collaborate with LAOs. A senior official in the Number 107 Sub-District Municipality explained that:

> "Most small-sized LAOs (sub-district municipalities and SAOs) collaborated with their local people on waste management. However, a collaboration did not work well when a waste management project could negatively affect local people's interests. For example, local people could oppose to an LAO's landfill site construction project since a landfill site could generate bad odour from its filled waste. Therefore, they did not want this kind of project to take place. Besides, some of local people decided to do not collaborate with a LAO because they did not have available time to join. For example, some persons claimed that they had to do their own works, so they did not have time to work with a LAO," (Interview with the Number 107 Sub-District Municipality senior official, 22/06/2017).

Next, Table 4.3 presented that 72 (17.2%) of responding LAOs collaborated with national organisations such as a Regional Environmental Office and a Provincial Environmental Office. These organisations are agencies of the central government that are located in every province of Thailand. They offered LAOs academic and technical assistance on waste management. The number of LAOs that solely collaborated with national organisations by the types of LAOs were 12 (31.6%) PAOs, 3 (21.4%) city municipalities, 14 (17.5%) town municipalities, 26 (16%) sub-district municipalities, and 17 (13.6%) SAOs. It could be concluded that national organisations were unitary member organisations with which the second highest number of LAOs chose to collaborate. It could be due to the fact that their agencies are located in every province so LAOs easily accessed these national organisations.

Furthermore, Table 4.3 showed that there were 48 (11.50%) responding LAOs that solely collaborated with LAOs. Both the largest and smallest types of LAOs were more likely to collaborate with other LAOs: namely 15.8% of PAOs, 14.4% of SAOs and 13% of sub-district municipalities, while the middle-sized town municipalities (3.8%) were less likely to do so. For example, the Number 104 Sub-District Municipality's representative stated that they sent their waste to the Number 105 City Municipality for disposal. The city municipality charged them the disposal fee at 450 baht/metric ton. In general, their sub-district municipality had 2-3 metric tons of waste to be disposed per day. These municipalities signed a contract together to control the implementation of the waste disposal processes.

Another example was the case of the Number 106 SAO. It was the smallest-sized LAO that collected waste in its area and sent it to be disposed at the town municipality's landfill site. The town municipality charged them the disposal fee at 3,000 baht/month (a flat rate). In the meantime, this SAO generated approximately 1-2 metric tons to be disposed per day. This might be the result of the national policy which encouraged LAOs to collaborate for waste management as a 'cluster.' Large-sized LAOs are expected to be 'big brothers' who support small-sized LAOs on waste management as their 'younger brothers.' This policy will be discussed in section 5.4, potential forms of collaborations for waste management of LAOs, in Chapter 5. However, city municipalities (0%) which were also large-sized LAOs were least likely to collaborate with other LAOs only. This does not mean that the city municipalities did not collaborate with other LAOs; they did collaborate with other LAOs as well as other types of organisations, as will be discussed in the multi-members section later.

Private organisations were the sole collaborating members of 24 (5.7%) responding LAOs comprising of 3 (21.4%) city municipalities, 10 (12.5%) town municipalities, 2 (5.3%) PAOs, 4 (3.2%) SAOs, and 5 (3.1%) sub-district municipalities. It could be summarised that LAOs collaborating with private organisations solely for the highest and the second highest numbers were large-sized LAOs located in a city's core or the central business district (CBD) areas (city municipalities and town municipalities).

For example, the Number 107 Sub-District Municipality senior official explained that:

> "We assigned our employees to drive garbage trucks and collect waste in our responsible areas. However, we were not able to dispose the waste by ourselves. Therefore, we collaborated with a private company in landfilling the waste. The relationship between the municipality and this company was a formal relationship namely the 'contracting out relationship.' We worked together in accordance with a contract we had signed only, no communication or interaction out of activities which were written in the contract," (Interview with the Number 107 Sub-District Municipality senior official, 22/06/2017).

(2) Multi-Member Collaborations

There were two sub-types of multi-member waste management collaborations. The first one was that a LAO collaborated with all types of organisations mentioned in the choices of the survey questionnaire such as other LAOs, national organisations, private organisations, NGOs, academic institutes and local people. In this sub-type, there were 57 (13.6%) responding LAOs consisting of 4 (28.6%) city municipalities, 15 (18.8%) town municipalities, 6 (15.8%) PAOs, 25 (15.4%) sub-district municipalities and 7 (5.6%) SAOs. Another sub-type of the multi-members was classed as 'others,' and was referred to as a collaboration of a LAO with more than one type but not all types of organisations. There were 77 (18.4%) of responding LAOs in this sub-type consisting of 16 (20%) town municipalities, 31 (19.1%) sub-district municipalities, 7 (18.4%) PAOs, 21 (16.8%) SAOs and 2 (14.3%) city municipalities.

For example, the Number 112 SAO shared its landfill site with the Number 113 SAO. Each of them was equally responsible for 50 per cent of a total expenditure of waste disposal operations in the landfill site. However, the Number 112 SAO was the only responsible organisation for the management of this site. Furthermore, they had created a network with other SAOs within responsible areas to help them dispose of their waste. Apart from a collaboration between LAOs, the Number 112 SAO also worked with local people. It created public awareness in reducing waste generation and separating waste at the source. Therefore, local people were encouraged to participate in waste management with the local SAO. Moreover, it was networking with national organisations in its area such as the Regional Environmental Office 10 and the District Office. The SAO competed for the zero-waste management award which was the national government's award for a successful LAO in waste management.

A senior official of the Number 112 SAO mentioned that:

> "Small-sized LAOs had several limitations; for instance, human resources and budgets. In case of the limited human resources, full-time employees were not enough for operating in a waste management collaboration. Therefore, we assigned our part-time employees to help the full-time ones. Moreover, our SAO resolved a problem of limited budget by cutting the budget for buying rubbish bins then used this budget for the collaboration for waste management's operations instead. Apart of implementing innovative policies that facilitated a waste management collaboration with our limited resources, we chose to collaborate with different types of members such as other LAOs, national organisations and local people for different

purposes. That was, we collaborated with other LAOs on waste disposal, collaborated with national organisations on competitions for national awards, and collaborated with local people on waste reduction and waste separation," (Interview with the Number 112 SAO senior official, 14/06/2017).

The Number 114 SAO was another LAO that collaborated with many sectors for its waste management. A senior official of this SAO explained about the collaboration that:

> "We collaborated with local people, hospitals and schools in our areas. The hospitals were responsible for collecting and disposing infected waste from patients who received their services when the schools educated students to separate waste at source, reuse waste by transforming them to other new products; for instance, making flower bouquets from used plastic straws and making caps from used aluminum cans, and offer the same knowledge to students' parents or families. We always had meetings in order to resolve problems and improve our waste management together," (Interview with the Number 114 SAO senior official, 21/06/2017).

The Number 4 City Municipality collaborated with local people for waste management, and with international organisations including the United Nations Development Programme (UNDP) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) for waste management technological assistance. These two examples showed that small-sized LAOs, for example a SAO, chose to collaborate with different types of organisations and members

for different purposes. These purposes were based on the idea of supplementing their limited resources with the capacities of other members.

4.1.4 Forms of Collaborations

The survey questionnaire investigated the forms of collaborations for waste management of Thai LAOs and the levels of commitment of collaborating members, ranging from a loose commitment at one end towards a very strong commitment at another end. That was, networking, partnership and integration respectively, as mentioned earlier in Chapter 2 - concepts and theories about collaboration. Table 4.4 shows that the first form of collaborations was a 'partnership' where relationships between collaborating organisations were formal, had written agreements about sharing resources (e.g. staff, equipment, technologies, knowledge and information) among members, and activities or tasks to be collectively implemented for achieving efficient waste management of responsible areas. A total of 249 (59.4%) responding LAOs used this form. PAOs were much more likely to be involved in partnerships (81.6%) than in networks (13.2%).

An explanation for this may be that the formal form of collaborations was more compatible to the largest bureaucratised LAOs like PAOs than the informal form. Other large-sized LAOs (town municipalities (65%) and city municipalities (64.3%)) also used this formal form more than the small ones (sub-district municipalities (55.6%) and SAOs (53.6%)). A senior official in the Number 107 Sub-District Municipality claimed that most collaborations for waste management of LAOs were formal. That was, collaborating organisations had

signed a memorandum of understanding (MOU) together, and worked in accordance with that MOU. In addition, some verbal agreements on joint working were also made.

Another form of collaborations for waste management of LAOs was a 'network' which referred to a collaboration in which the members had informal and ad hoc relationships for accomplishment of waste management goals. Between a third and half of town municipalities (32.5%), city municipalities (35.7%), sub-district municipalities (39.5%) and SAOs (43.2%) had such relationships, but this was much less for the largest LAOs and PAOs (13.2%). It was possible that PAOs were less likely to use informal collaborations because they were the largest LAOs which had authorities over the whole area of provinces (Provincial Administrative Organisations Act, B.E. 2540, 2019), and had authorities to collect major incomes of provincial areas, for example collecting important taxes, and allocating these incomes to municipalities and SAOs (Chitsujarijwong and Ngarmsanit, 2016, p. 127). Thus, they were more complex than the other types of LAOs. Their complexity possibly needed a formal form of collaboration to deal with waste management problems.

The last form of collaborations was 'integration.' This was a collaboration between organisations that had an agreement to devolve their powers to collectively establish a new organisation which was specifically responsible for waste management in their areas. The data showed that there were 16 (3.8%) responding LAOs using this form, consisting of two (5.3%) PAOs, eight (4.9%) SAOs and two (2.5%) town municipalities. Although LAOs that implemented this form were the smallest group of the responding LAOs, it showed that Thai

LAOs had already developed their collaborations for waste management to the highest level of collaborating members' commitment. Moreover, even the smallest LAOs (SAOs) could implement this form.

Table 4.4: 'Which statement best describes characteristics of your local administrative organisation's waste management collaboration?

Forms of Collaborations	**Types of LAOs**					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
Partnership						
Number	31	9	52	90	67	269
% within each type	81.6%	64.3%	65%	55.6%	53.6%	59.4%
Network						
Number	5	5	26	64	54	154
% within each type	13.2%	35.7%	32.5%	39.5%	43.2%	36.8%
Integration						
Number	2	0	2	8	4	16
% within each type	5.3%	0%	2.5%	4.9%	3.2%	3.8%
Total						
Number	38	14	80	162	125	419
% within each type	100%	100%	100%	100%	100%	100%

4.2 Collaborative Capacities of Local Administrative Organisations and Outcomes of Collaborations for Waste Management

4.2.1 Collaborative Capacities

In the questionnaire of the survey, respondents were asked about two groups of collaborative capacities: organisational collaborative capacities and strategic collaborative capacities which had been explained in Chapter 3 - research design and methods. When analysing results of a survey that uses the Likert scale (5-point scale), the analysis method which has been widely used was the 'top 2 box score (T2B).' It is a survey analysis method to highlight key values in an easily digestible way. That is, it summarises positive responses from survey questions that use the Likert scale by combining the highest two responses of the scale to create a single number. The top 2 box responses are the first two positive responses, for example, extremely likely and very likely. To calculate the top 2 box score, we add together both of these responses and calculate a percentage. The top 2 box score can simplify a survey analysis because instead of reviewing five numbers, we will only have one percentage to look at (SurveyMonkey, 2018). The top 2 box method is a useful method, but we do not make use of the other data in the survey. In addition, this method does not show how strong the agreement is. Therefore, I used a 'net agree' calculation instead.

With a net agree calculation, we use four of the five survey items to show the strength of the agreement and make use of more data obtained from the survey. It is a method that calculates the difference between the top two boxes from the bottom two boxes of the Likert scale. We ignore the 'moderate' data because we are primarily interested in the extent to which respondents do or do not agree with the statements we provided in the survey questionnaire.

That is, we subtract ‘disagree/strongly disagree’ from ‘agree/strongly agree’ to get a net score for creating a net agreement table. In some cases, a net score is negative which implies a strong disagreement of a respondent. This method is used in the analysis of several surveys of residents’ attitudes towards their local authority, for example, the Quarterly Residents’ Survey February – March 2014 which was carried out by the London Borough of Camden. They call the result of their calculation a ‘net satisfaction’ but their method is the same method as a net agree calculation. That is, they subtract the negative responses from positive responses and disregard the ‘don’t know’ and the ‘neither’ responses (London Borough of Camden, 2014, p. 4).

Another survey that uses a net agree calculation is the Birmingham Residents’ Survey 2016-17 which was carried out by the BMG Research amongst Birmingham residents on behalf of the Birmingham City Council (BCC). They also call a result of their calculation a ‘net satisfaction’, and they want it to be referred to as a net satisfaction, a net agree or a net positive (Birmingham Data Factory, 2017). The last example of surveys that use a net agree calculation is the London Borough of Sutton Residents’ Survey 2017. They call results of their calculations by various names such as ‘net agree,’ ‘net informed’ and ‘net satisfied.’ All of them show net attitudes of residents within the local area and the services provided by the council (London Borough of Sutton, 2017). In this thesis, there are two net agreement tables which are created from results on collaborative capacities of the survey as follows:

(1) Organisational Collaborative Capacities

In this section, the respondents were asked to choose levels of their agreements towards the statements relevant to organisational collaborative capacities that the questionnaire provided. These levels of agreements of the respondents imply organisational collaborative capacities of the respondents' LAOs. That is, a stronger level of agreement refers to a higher organisational collaborative capacity. Table 4.5 shows that there is a distinct gap between levels of net agreements of large (PAO, city municipality and town municipality) and small (sub-district municipality and SAO) LAOs. That is, a group of large LAOs has much stronger agreements towards the statements than a group of small LAOs. Therefore, it can be implied that large LAOs have much higher organisational collaborative capacities than small ones. Moreover, Table 4.5 shows negative values of net agreements of small LAOs towards the second statement; i.e. they have strong disagreements that local administrative staff who work for waste management collaborations are not overworked. This implies that small LAOs have much lower organisational collaborative capacities than large LAOs in terms of appropriate workloads of their staff.

Finally, Table 4.5 also shows negative values of small LAOs towards the sixth statement. I.e. they have strong disagreements that they have always been communicating with other members of their collaborations. It can be implied that small LAOs have much lower organisational collaborative capacities to frequently communicate with other collaborating members than large LAOs. I hypothesise that there are two reasons why small LAOs think that they have not been frequently communicating with other collaborating members. First, they might only communicate with each other during formal communications, for example

in official meetings. In case of SAOs, their responsible areas are possibly too remote or hard to access in particular areas, for example forestry, mountainous areas, or islands (Tipmanosing, 2017, p. 118). This can be the reason why it is difficult for them to have formal communications with other collaborating members. Second, I hypothesise that small LAOs frequently have informal communications with other collaborating members instead, especially with local people since Table 4.3 shows that local people are the group of other collaborating members with which small LAOs collaborate at the highest percentage (29% of sub-district municipalities and 44.8% of SAOs compared with between 5.3% and 21.3% of the larger LAOs). There is atheory that SAOs are LAOs that communicate more closely with local people than larger LAOs. Their communications with local people are not as complicated as those of large LAOs because they cover a small population. Executives and staff of SAOs are also natives in those areas. Therefore, local people have found them trustable and easy to talk to (Tipmanosing, 2017, p. 117).

Table 4.5: Net Agreement for Organisational Collaborative Capacities

Net agree/strongly agree	**Types of LAOs**					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
1. 'Staff working for a LAO's waste management collaboration are well qualified.'	84.2	92.8	86.3	55.6	44.8	62.1
2. 'Staff working for a LAO's waste management collaboration are not overworked.'	39.4	71.5	37.5	-71.0	-71.2	-35.5
3. 'Our LAO has clear policies and plans for the operations of our waste management collaboration.'	78.9	85.8	92.5	58.1	48.8	64.7
4. 'Our LAO has rules or regulations for controlling operations of the collaboration for waste management.'	81.5	85.7	86.3	54.4	40.8	59.8
5. 'Information about waste management collaboration of our LAO is published to the public.'	86.9	85.7	85.0	54.3	41.6	60.3
6. 'Our LAO has always been communicating with other collaborating members.'	79.0	78.6	82.5	-23.5	-37.6	5.3

Furthermore, I employ the independent-samples t-test to examine whether the organisational collaborative capacities of large LAOs (PAOs, city municipalities and town municipalities) are different from the organisational collaborative capacities of small LAOs (sub-district municipalities and SAOs).

Parametric tests such as t-tests, analysis of variance and Pearson correlations and regression can be used to analyse Likert scale responses if there is an adequate sample size (i.e. at least 5-10 observations per group) and the distribution of data is normal or nearly normal (Jamieson, 2004, p. 1218; Sullivan and Artino Jr, 2013, p. 542). The number of my observations is 419 which is an adequate sample size. Therefore, I perform the normal distribution test for all variables from the Likert scale responses. I call these variables the 'simple variables' which means sub-types of organisational collaborative capacities, strategic collaborative capacities, problem-solving outcomes and working-relationship outcomes as presented in Table 4.6.

Table 4.6: Simple Variables

Variables	Labels
Sub-Types of Organisational Collaborative Capacities	
B1	Staff working for a collaboration are well qualified.
B2	Staff working for a collaboration are not overworked.
B3	A LAO has clear policies and plans for the operations of a waste management collaboration.
B4	A LAO has rules or regulations for controlling the operations of a collaboration for waste management.
B5	Information about a waste management collaboration of a LAO are published to the public.
B6	A LAO is always communicating with other members of a collaboration.
Sub-Types of Strategic Collaborative Capacities	
C1	A LAO has strategies to deal with obstacles emerging during the operations of a collaboration for waste management.
C2	Collaborating members are well responsible for their own tasks in a collaboration.
C3	A LAO has procedures to deal with potential emergency situations that may occur during the operations of a waste management collaboration.

C4	A LAO has strategies to create new ways to make a collaboration for waste management more effective.
Sub-Types of Problem-Solving Outcomes	
D1	When a collaboration encounters any problems, a LAO and other collaborating members will find solutions together. Case by case consideration provides appropriate solutions to problems.
D2	Collaborating members use solutions from collective discussions to deal with problems emerging during the operations of a waste management collaboration.
D3	Solutions from collective discussion among collaborating members are likely to work well/ solve problems effectively.
D4	Solutions from collective discussion among collaborating members can be applied to future problems.
D5	Benefits from a collaboration for waste management are worth its costs.
D6	A LAO and other collaborating members brainstorm to create innovations for waste management.
Sub-Types of Working-Relationship Outcomes	
E1	A collaboration for waste management makes a working relationship between a LAO and other collaborating members better.
E2	Collaborating with other organisations on waste management makes a LAO encounter many problems.
E3	Although problems occur during waste management collaboration, these problems can be solved through collective discussion between collaborating members.

E4	Collaborating members always communicate with each other for consultations and mutual assistance on waste management.
E5	Collaborating members are satisfied with collaborative waste management procedures.

Table 4.7 shows the tests results of normal distribution of the simple variables. Because the dataset has less than 2,000 observations, we must use the results from the Shapiro-Wilk test. Table 4.11 shows that the *p*-values of all variables are 0.000 which is less than 0.5. As a result, my data from the Likert scale responses are normally distributed (Maths-Statistics-Tutor.com, 2010). Thus, they can be analysed by the t-tests or other parametric tests.

Table 4.7: Tests of Normal Distribution of Simple Variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
B1	0.355	419	0.000	0.788	419	0.000
B2	0.286	419	0.000	0.859	419	0.000
B3	0.337	419	0.000	0.814	419	0.000
B4	0.334	419	0.000	0.818	419	0.000
B5	0.330	419	0.000	0.821	419	0.000
B6	0.261	419	0.000	0.885	419	0.000
C1	0.343	419	0.000	0.802	419	0.000
C2	0.329	419	0.000	0.814	419	0.000
C3	0.231	419	0.000	0.883	419	0.000
C4	0.229	419	0.000	0.890	419	0.000
D1	0.362	419	0.000	0.780	419	0.000
D2	0.353	419	0.000	0.796	419	0.000
D3	0.246	419	0.000	0.894	419	0.000
D4	0.333	419	0.000	0.820	419	0.000

D5	0.321	419	0.000	0.833	419	0.000
D6	0.306	419	0.000	0.839	419	0.000
E1	0.354	419	0.000	0.781	419	0.000
E2	0.357	419	0.000	0.779	419	0.000
E3	0.355	419	0.000	0.782	419	0.000
E4	0.335	419	0.000	0.805	419	0.000
E5	0.357	419	0.000	0.787	419	0.000

a. Lilliefors Significance Correction

The result of Table 4.8 shows that the *p* values of Levene's test (sig. (2-tailed)) of all sub-types of organisational collaborative capacities are 0.000 which is less than 0.05. It can be concluded that there is significant difference in mean organisational collaborative capacities between large and small LAOs (Bryman and Cramer, 2005, pp. 177-178). This supports the result of a net agree calculation which implies that large LAOs have much higher organisational collaborative capacities than small ones.

Table 4.8: Independent-Samples T-Test for Organisational Collaborative Capacities

		Levene's Test		T-Test for Equality of Means						
									Interval of the	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Staff working for LAO's waste management collaboration are well qualified	Equal variances assumed	31.254	0.000	7.251	417	0.000	0.560	0.077	0.408	0.712
	Equal variances not assumed			7.859	312.003	0.000	0.560	0.071	0.420	0.700
Staff working for LAO's waste management collaboration are not overworked	Equal variances assumed	44.742	0.000	17.301	417	0.000	1.328	0.077	1.177	1.478
	Equal variances not assumed			15.063	188.257	0.000	1.328	0.088	1.154	1.501
Our LAO has clear policies and plans for the operations of our collaboration	Equal variances assumed	6.831	0.009	8.602	417	0.000	0.617	0.072	0.476	0.758
	Equal variances not assumed			8.814	270.422	0.000	0.617	0.070	0.479	0.755
Our LAO has rules or regulations for controlling operations of the collaboration	Equal variances assumed	14.046	0.000	8.526	417	0.000	0.630	0.074	0.485	0.775
	Equal variances not assumed			8.850	279.376	0.000	0.630	0.071	0.490	0.770
Information about waste management collaboration of our LAO is published to the public	Equal variances assumed	13.693	0.000	8.367	417	0.000	0.638	0.076	0.488	0.788
	Equal variances not assumed			8.766	286.122	0.000	0.638	0.073	0.495	0.781
Our LAO has always been communicating with other collaborating members	Equal variances assumed	1.837	0.176	20.305	417	0.000	1.392	0.069	1.257	1.527
	Equal variances not assumed			20.044	246.680	0.000	1.392	0.069	1.255	1.529

(2) Strategic Collaborative Capacities

In this section, the respondents were asked to choose levels of their agreements towards the statements regarding strategic collaborative capacities that the questionnaire provided. These levels of agreements of the respondents imply strategic collaborative capacities of the respondents' LAOs. That is, a stronger level of agreement refers to a higher strategic collaborative capacity. Table 4.9 shows a distinct gap between levels of net agreements of large (PAO, city municipality and town municipality) and small (sub-district municipality and SAO) LAOs. That is, a group of large LAOs has much stronger agreements towards the statements than a group of small LAOs. This implies that large LAOs have much higher strategic collaborative capacities than small ones.

Furthermore, Table 4.9 shows negative values of net agreements of small LAOs towards the third and the fourth statement – i.e. they have strong disagreements that their LAOs have strategies to deal with emergency situations or create new innovations for the collaborations. In case of strategies to deal with emergency situations, I hypothesise that small LAOs do not have these strategies because they have limited resources, so they use the resources for the core tasks of waste management, instead of investing in the creation of awareness of emergency. For example, the Number 115 SAO mentioned that their organisation did not have enough staff who were specialised in waste management. Thus, the organisation had to appoint administration officers who had degrees in public health to be responsible for waste management (interview with a representative of the Number 115 SAO, 22/06/2017).

Turning to the strategies for creating new innovations, I hypothesise that small LAOs do not have these strategies due to their limited resources as well. That is, they use simple methods to dispose of waste, for example, landfilling. Thus, they have no incentive to think about creating new innovations. For example, the Number 107 Sub-District Municipality stated that small LAOs did open waste burning or used open dumps because sanitary landfill sites were much more expensive; i.e. each sanitary landfill site costs approximately two million Baht. Moreover, many SAOs did not even have garbage trucks and other necessary waste handling equipment. In the case of their municipality, there were protests against the construction of a sanitary landfill site and a waste-to-energy plant because local people did not realise what the benefits were of these expensive waste disposal methods (interview with a representative of the Number 107 Sub-District Municipality, 22/06/2017). The Number 115 SAO also mentioned that their organisation could not construct the sanitary landfill site that they wanted because they did not have the budget for it (interview with a representative of the Number 115 SAO, 22/06/2017).

Table 4.9: Net Agreement for Strategic Collaborative Capacities

Net agree/strongly agree	Types of LAOs					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
1. 'Our LAO has the strategies to deal with obstacles emerged during operations of the collaboration for waste management.'	73.7	78.6	88.8	44.5	40.8	55.6
2. 'Collaborating members are well informed about their responsibilities in the collaboration.'	81.6	78.6	77.5	51.2	40.8	56.8
3. 'Our LAO has the procedures to handle potential emergency situations occurring during the operation of the waste management collaboration.'	71.1	71.5	77.4	-39.5	-52.0	-7.2
4. 'Our LAO has the strategy to create new ways to make the collaboration for waste management more efficient.'	76.4	78.6	87.5	-35.2	-39.2	1.0

Moreover, I employ the independent-samples t-test to examine whether the strategic collaborative capacities of large LAOs (PAOs, city municipalities and town municipalities) are different from the strategic collaborative capacities of small LAOs (sub-district

municipalities and SAOs). The result of Table 4.10 shows that the *p* values of Levene's test (sig. (2-tailed)) of all sub-types of strategic collaborative capacities are 0.000 which is less than 0.05. It can be concluded that there is significant difference in mean strategic collaborative capacities between large and small LAOs (Bryman and Cramer, 2005, pp. 177-178). This supports the result of a net agree calculation which implied that large LAOs have much higher strategic collaborative capacities than small ones.

Table 4.10: Independent-Samples T-Test for Strategic Collaborative Capacities

		Levene's Test		T-Test for Equality of Means						
									Interval of the	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Our LAO has the strategies to deal with obstacles emerged during the collaboration	Equal variances assumed	48.861	0.000	8.038	417	0.000	0.583	0.073	0.441	0.726
	Equal variances not assumed			8.591	301.070	0.000	0.583	0.068	0.450	0.717
Collaborating members are well informed about their responsible tasks in the collaboration	Equal variances assumed	23.167	0.000	7.171	417	0.000	0.519	0.072	0.377	0.661
	Equal variances not assumed			7.302	266.221	0.000	0.519	0.071	0.379	0.659
Our LAO has the procedures to handle potential emergency situations	Equal variances assumed	5.707	0.017	20.908	417	0.000	1.417	0.068	1.284	1.550
	Equal variances not assumed			20.204	234.577	0.000	1.417	0.070	1.279	1.555
Our LAO has the strategy to create new ways to make the collaboration more efficient	Equal variances assumed	14.315	0.000	21.584	417	0.000	1.443	0.067	1.311	1.574
	Equal variances not assumed			21.280	245.970	0.000	1.443	0.068	1.309	1.576

4.2.2 Outcomes of Collaborations for Waste Management

In this survey, I focused on outcomes of LAOs' waste management collaborations in terms of problem-solving and working relationships of collaborating organisations which were explained in Chapter 3 - research design and methods. I use a net agree calculation to get a net score for creating a net agreement table like the previous section. As a result, there are two net agreement tables which were created from results on outcomes of collaborations of the survey as follows.

(1) Problem-Solving Outcomes

In this section, the respondents were asked to choose levels of their agreement towards the statements regarding problem-solving outcomes that the questionnaire provided. These levels of agreement of the respondents imply problem-solving outcomes of the respondents' LAOs. That is, a stronger level of agreement refers to a higher problem- solving outcome. Table 4.11 shows that there is a distinct gap between levels of net agreements of large (PAO, city municipality and town municipality) and small (sub-district municipality and SAO) LAOs. That is, a group of large LAOs has much stronger agreements towards the statements than a group of small LAOs. Therefore, it can be implied that large LAOs have much higher problem-solving outcomes than small ones.

Moreover, Table 4.11 shows negative values of net agreements of small LAOs towards the third statement – i.e. they have strong disagreements that solutions from their discussions with other collaborating members can effectively solve problems which emerge in

collaborative activities. This implies that small LAOs achieve much lower problem-solving outcomes in terms of effective solutions than large ones.

Table 4.11: Net Agreement for Problem-Solving Outcomes

Net agree/strongly agree	**Types of LAOs**					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
1. 'When the collaboration encounters any problems, our LAO and other collaborating members will find solutions together by considering appropriate solutions to the problems on a case by case basis.'	86.8	71.5	83.7	67.2	50.4	67.2
2. 'The collaborating members use solutions obtained from collective discussions to deal with problems emerged during operations of the waste management.'	94.7	71.5	87.5	55.6	49.6	64.0
3. 'The solutions from collective discussion among collaborating members are likely to solve problems effectively.'	78.9	78.7	87.4	-18.5	-27.2	11.3
4. 'The solutions obtained from collective discussion among collaborating members can be applied to future problems.'	81.6	71.5	85.0	55.5	44.8	60.9

5. ‘The benefits of the waste management collaboration are worth its costs.’	76.3	85.8	78.8	46.4	40.8	54.9
6. ‘Our LAO and other collaborating members brainstorm to create innovations for waste management.’	79.0	78.6	72.5	42.6	32.8	49.9

Furthermore, I employ the independent-samples t-test to examine whether the problem-solving outcomes of large LAOs (PAOs, city municipalities and town municipalities) are different from the problem-solving outcomes of small LAOs (sub-district municipalities and SAOs). The result of Table 4.12 shows that the *p* values of Levene’s test (sig. (2-tailed)) of all sub-types of problem-solving outcomes are 0.000 which is less than 0.05. It can be concluded that there is a significant difference in mean problem-solving outcomes between large and small LAOs (Bryman and Cramer, 2005, pp. 177-178). This supports the result of a net agree calculation which implies that large LAOs have much higher problem-solving outcomes than small ones.

Table 4.12: Independent-Samples T-Test for Problem-Solving Outcomes

		Levene's Test		T-Test for Equality of Means						
									Interval of the	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
When the collaboration encounters any problems, we will find solutions together	Equal variances assumed	2.961	0.086	6.904	417	0.000	0.482	0.070	0.345	0.619
	Equal variances not assumed			6.716	238.241	0.000	0.482	0.072	0.340	0.623
Members use solutions from collective discussion to deal with problems	Equal variances assumed	15.276	0.000	8.295	417	0.000	0.596	0.072	0.455	0.738
	Equal variances not assumed			8.591	277.802	0.000	0.596	0.069	0.460	0.733
Solutions from collective discussion are likely to solve problems	Equal variances assumed	0.792	0.374	17.942	417	0.000	1.374	0.077	1.223	1.524
	Equal variances not assumed			18.466	273.448	0.000	1.374	0.074	1.227	1.520
Solutions obtained from collective discussion can be applied to future problems	Equal variances assumed	8.154	0.005	7.635	417	0.000	0.583	0.076	0.433	0.734
	Equal variances not assumed			7.715	261.154	0.000	0.583	0.076	0.435	0.732
Benefits of waste management collaboration are worth its costs	Equal variances assumed	20.830	0.000	7.087	417	0.000	0.567	0.080	0.410	0.724
	Equal variances not assumed			7.351	278.942	0.000	0.567	0.077	0.415	0.719
LAO and other collaborating members brainstorm to create innovations	Equal variances assumed	14.211	0.000	7.114	417	0.000	0.557	0.078	0.403	0.711
	Equal variances not assumed			7.165	259.083	0.000	0.557	0.078	0.404	0.710

(2) Working-Relationship Outcomes

In this section, the respondents were asked to choose levels of their agreements on the statements regarding working-relationship outcomes that the questionnaire provided. These levels of agreements of the respondents imply working-relationship outcomes of the respondents' LAOs. That is, a stronger level of agreement refers to a better working-relationship outcome. The data in Table 4.13 indicates that levels of net agreements of large and small LAOs are less divergent in terms of working relationships than they were with problem-solving outcomes and the operational and strategic collaborative capacities reported above. That is, at least 50% of all of them agree that collaborations can improve their working relationships with other collaborating members in all aspects, except for SAOs' net agreement to the fourth statement, where only 44.8% of them agree that collaborating members frequently communicate with each other for consultation and mutual assistance compared with over 70% of the larger LAOs.

Besides, the lower working-relationship outcomes for smaller organisations in this table may be connected to the lower problem-solving outcomes in Table 4.9 because if collaborative working relationships are not successful, then it will be likely to affect the success of collaborative problem solving. This hypothesis will be tested in the next section: relationships between collaborative capacities of LAOs and outcomes of their collaborations for waste management.

Table 4.13: Net Agreement for Working-Relationship Outcomes

Net agree/strongly agree	Types of LAOs					Total
	PAO	City Municipality	Town Municipality	Sub-District Municipality	SAO	
1. 'The collaboration for waste management makes the working relationship between our LAO and other collaborating members better.'	84.2	64.3	83.8	71.0	54.4	69.4
2. 'Collaborating with other organisations for waste management makes our LAO encounters many problems.'	84.2	64.3	83.8	71.0	54.4	69.4
3. 'Although problems occur in the waste management collaboration, they can be solved through collective discussion among collaborating members.'	89.4	64.3	85.0	64.8	50.4	66.6
4. 'The collaborating members always communicate with each other for consultation and mutual assistance on waste management.'	86.9	71.5	81.2	55.5	44.8	60.7
5. 'The collaborating members are satisfied with a collective waste management.'	84.2	57.1	87.5	62.4	51.2	65.6

Moreover, I employ the independent-samples t-test to examine whether the working-relationship outcomes of large LAOs (PAOs, city municipalities and town municipalities) are different from the working-relationship outcomes of small LAOs (sub-district municipalities and SAOs). The result of Table 4.14 shows that the *p* values of Levene's test (sig. (2-tailed)) of sub-types of working-relationship outcomes are 0.000 which is less than 0.05. It can be concluded that there is a significant difference in mean working-relationship outcomes between large and small LAOs (Bryman and Cramer, 2005, pp. 177-178). This implies that the t-test can only provide an indicative check on the findings of the 'net agree' analysis that there is a difference between large and small LAOs in terms of their collaborative capacities and outcomes.

Table 4.14: Independent-Samples T-Test for Working-Relationship Outcomes

		Levene's Test		T-Test for Equality of Means						
									Interval of the	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
The collaboration makes working relationship better	Equal variances assumed	0.122	0.727	6.347	417	0.000	0.481	0.076	0.332	0.630
	Equal variances not assumed			6.276	247.667	0.000	0.481	0.077	0.330	0.632
Collaborating with other organisations makes LAO encounter problems	Equal variances assumed	58.240	0.000	-7.729	417	0.000	-0.530	0.069	-0.665	-0.395
	Equal variances not assumed			-6.822	193.259	0.000	-0.530	0.078	-0.683	-0.377
Problems can be solved through collective discussion	Equal variances assumed	4.409	0.036	7.229	417	0.000	0.539	0.075	0.393	0.686
	Equal variances not assumed			7.346	264.905	0.000	0.539	0.073	0.395	0.684
Collaborating members always communicate with each other	Equal variances assumed	10.552	0.001	7.598	417	0.000	0.570	0.075	0.422	0.717
	Equal variances not assumed			7.668	260.398	0.000	0.570	0.074	0.424	0.716
Collaborating members are satisfied with collective waste management procedures	Equal variances assumed	10.029	0.002	6.725	417	0.000	0.468	0.070	0.331	0.605
	Equal variances not assumed			6.599	243.221	0.000	0.468	0.071	0.328	0.608

4.3 Relationships between Collaborative Capacities of Local Administrative Organisations and Outcomes of Collaborations for Waste Management

After analysing each type of collaborative capacities and outcomes of collaborations separately in the previous section, this section examines relationships between collaborative capacities of Thai LAOs and outcomes of their collaborations for waste management by correlation analyses. This section is divided into two parts as follows:

4.3.1 Correlations between Simple Variables

This part examines relationships between simple variables which means sub-types of organisational collaborative capacities, strategic collaborative capacities, problem-solving outcomes and working-relationship outcomes as presented in Table 4.10 above. The results of Table 4.15 show significant associations between simple variables as follows. First, the correlation coefficients between all sub-types of organisational collaborative capacities, strategic collaborative capacities and the E2 working-relationship outcomes ('Collaborating with other organisations on waste management makes a LAO encounter many problems.') are negative (-) values. Thus, it can be concluded that the more organisational collaborative capacities or the more strategic collaborative capacities a Thai LAO has, the fewer problems of their waste management collaborations they will encounter (Bryman and Cramer, 2005, p. 214).

Second, the correlation coefficient between the B6 organisational collaborative capacity (‘A LAO is always communicating with other members of a collaboration.’) and the D3 problem-solving outcome (‘Solutions from collective discussion among collaborating members are likely to work well/solve problems effectively.’) is 0.722. It is a positive and high coefficient value. As a result, it can be concluded that the more frequently a Thai LAO communicates with other members of a collaboration, the more likely they are to find solutions through collective discussion for effectively solving problems.

The final point is that the correlation coefficient between the C4 strategic collaborative capacity (‘A LAO has strategies to create new ways to make a collaboration for waste management more effective.’) and the D3 problem-solving outcome (‘Solutions from collective discussion among collaborating members are likely to work well/solve problems effectively.’) is 0.782. It is a positive and high coefficient value. As a result, it can be concluded that the more strategies a Thai LAO has to create new ways for making a waste management collaboration more effective, the more likely they are to find solutions through collective discussion for solving problems effectively (Bryman and Cramer, 2005, p. 214).

Table 4.15: Correlations of Simple Variables

		D1	D2	D3	D4	D5	D6	E1	E2	E3	E4	E5
B1	Pearson Correlation	.510**	.558**	.528**	.512**	.489**	.523**	.478**	-.202**	.540**	.540**	.536**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
B2	Pearson Correlation	.460**	.465**	.628**	.480**	.452**	.508**	.414**	-.362**	.432**	.454**	.449**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
B3	Pearson Correlation	.590**	.590**	.566**	.607**	.526**	.518**	.549**	-.238**	.589**	.585**	.626**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
B4	Pearson Correlation	.598**	.588**	.502**	.544**	.550**	.522**	.493**	-.216**	.568**	.576**	.593**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
B5	Pearson Correlation	.572**	.613**	.529**	.604**	.589**	.611**	.563**	-.234**	.552**	.589**	.580**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
B6	Pearson Correlation	.514**	.562**	.722**	.515**	.499**	.516**	.531**	-.322**	.526**	.571**	.522**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
C1	Pearson Correlation	.572**	.654**	.536**	.579**	.480**	.579**	.505**	-.258**	.525**	.557**	.562**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
C2	Pearson Correlation	.659**	.701**	.523**	.599**	.562**	.593**	.567**	-.269**	.625**	.643**	.590**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
C3	Pearson Correlation	.575**	.636**	.772**	.581**	.553**	.582**	.536**	-.390**	.545**	.584**	.558**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419
C4	Pearson Correlation	.580**	.617**	.782**	.592**	.537**	.581**	.525**	-.383**	.544**	.555**	.555**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419	419	419	419	419	419

**. Correlation is significant at the 0.01 level (2-tailed).

4.3.2 Correlations between Transformed Variables

The simple variables of sub-types of organisational collaborative capacities, strategic collaborative capacities, problem-solving outcomes and working-relationship outcomes have been added or subtracted to create the transformed variables in order to show the associations between collaborative capacities and outcomes of the collaboration in an overall picture as presented in Table 4.16. The reason why the 'E2' variable has been subtracted for creating the 'T4' variable is that E2 is a simple variable which indicates that 'collaborating with other organisations on waste management makes a LAO encounter many problems.' It is a negative working-relationship outcome when other variables for creating the T4 variable are positive problem-solving outcomes. Therefore, the E2 needs to be subtracted.

Table 4.16: Transformed Variables

Variables	Labels	Index of Variables
T1	Total organisational collaborative capacities	T1 = B1+B2+B3+B4+B5+B6
T2	Total strategic collaborative capacities	T2 = C1+C2+C3+C4
T3	Total problem-solving outcomes	T3 = D1+D2+D3+D4+D5+D6
T4	Total working-relationship outcomes	T4 = E1-E2+E3+E4+E5

T5	Total collaborative capacities	T5 = T1+T2
T6	Total outcomes of collaboration	T6 = T3+T4

The results of Table 4.17 show significant associations between transformed variables as follows. First, the correlation coefficient between T1 (total organisational collaborative capacities) and T2 (total strategic collaborative capacities) is 0.836. This is a positive and high correlation coefficient. As a result, it can be concluded that when the total organisational collaborative capacities increase, the total strategic collaborative capacities will also increase and vice versa. Second, the correlation coefficient between T1 (total organisational collaborative capacities) and T3 (total problem-solving outcomes) is 0.800, and the correlation coefficient between T2 (total strategic collaborative capacities) and T3 (total problem-solving outcomes) is 0.818. As a result, when either the total organisational collaborative capacities or the total strategic collaborative capacities increase, the total problem-solving outcomes will increase (Bryman and Cramer, 2005, p. 214).

The third association is that the correlation coefficient between T1 (total organisational collaborative capacities) and T4 (total working-relationship outcomes) is 0.748, and the correlation coefficient between T2 (total strategic collaborative capacities) and T4 (total working-relationship outcomes) is 0.740. As a result, when either the total organisational collaborative capacities or the total strategic collaborative capacities increase, the total working-relationship outcomes will increase (Bryman and Cramer, 2005, p. 214).

The next association is that the correlation coefficient between T1 (total organisational collaborative capacities) and T6 (total outcomes of collaboration) is 0.806, and the correlation coefficient between T2 (total strategic collaborative capacities) and T6 (total outcomes of collaboration) is 0.813. As a result, when either the total organisational collaborative capacities or the total strategic collaborative capacities increase, the total outcomes of collaboration will increase (Bryman and Cramer, 2005, p. 214).

The fifth association is that the correlation coefficient between the T4 (total working-relationship outcomes) and the T3 (total problem-solving outcomes) is 0.851. It is a positive and high correlation coefficient. Therefore, it supports my hypothesis in the net agree section that if collaborative working relationships are not successful, then it will be likely to affect the success of collaborative problem solving. The final association is that the correlation coefficient between T5 (total collaborative capacities) and T6 (total outcomes of collaboration) is 0.844. It is a positive and high correlation coefficient. As a result, it can be concluded that when the total collaborative capacities increase, the total outcomes of collaboration will increase (Bryman and Cramer, 2005, p. 214).

Table 4.17: Correlations of Transformed Variables

Correlations							
		Total Organisational Collaborative Capacities	Total Strategic Collaborative Capacities	Total Problem-Solving Outcomes	Total Working-Relationship outcomes	Total Collaborative Capacities	Total Outcomes of Collaboration
Total Organisational Collaborative Capacities	Pearson Correlation	1	.836**	.800**	.748**	.971**	.806**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419
Total Strategic Collaborative Capacities	Pearson Correlation	.836**	1	.818**	.740**	.944**	.813**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	419	419	419	419	419	419
Total Problem-Solving Outcomes	Pearson Correlation	.800**	.818**	1	.851**	.842**	.968**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	419	419	419	419	419	419
Total Working-Relationship outcomes	Pearson Correlation	.748**	.740**	.851**	1	.777**	.956**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	419	419	419	419	419	419
Total Collaborative Capacities	Pearson Correlation	.971**	.944**	.842**	.777**	1	.844**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000
	N	419	419	419	419	419	419
Total Outcomes of Collaboration	Pearson Correlation	.806**	.813**	.968**	.956**	.844**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	419	419	419	419	419	419
**. Correlation is significant at the 0.01 level (2-tailed).							

Conclusion

It can be concluded that there are three forms of collaboration in which Thai LAOs participate. The first form is partnership which has formal relationships and written agreements (e.g. memoranda of understanding) of collaborating organisations. Large LAOs use this form more than small ones. The second form is networking which has informal and ad hoc relationships of collaborating organisations. Between 30 to 50% of municipalities and SAOs use this form. The last form is integration which has the highest level of collaborating members' commitment. The smallest group of responding LAOs (3.8%) consisting of PAOs, town municipalities and SAOs use this form. Furthermore, there are significant differences of organisational collaborative capacities, strategic collaborative capacities, problem-solving outcomes and working-relationship outcomes between large LAOs (PAOs, city municipalities and town municipalities) and small LAOs (sub-district municipalities and SAOs). That is, overall large LAOs have much higher collaborative capacities and outcomes of collaboration than the small ones.

Besides, if Thai LAOs have more organisational collaborative capacities or strategic collaborative capacities, they will encounter fewer problems with their waste management collaborations. Furthermore, if collaborative working relationships among collaborating members are not successful, it will be likely to affect the success of collaborative problem solving. The final point is that when the total collaborative capacities of Thai LAOs increase, their total outcomes of collaborations for waste management are much more likely to increase. Although I have an assumption that higher collaborative capacities will lead to higher outcomes of the collaboration, the results of the correlation analyses indicate that the

higher outcomes of collaborations can lead to higher collaborative capacities as well because a positive correlation coefficient shows a positive relationship. That is, higher values of one variable being associated with higher values of another variable (Bryman and Cramer, 2005, p. 214) but it does not show the causation.

CHAPTER 5

NATIONAL POLICY CONTEXT OF COLLABORATIONS FOR WASTE MANAGEMENT AMONGST THAI LOCAL ADMINISTRATIVE ORGANISATIONS

Introduction

In Thailand, waste management is a public service under the control of the local government, because a local administrative organisation was assigned to be the key organisation to provide these public services., Article 281 of the Constitution of the Kingdom of Thailand B.E. 2550 (A.D. 2007) states that "…The state shall give autonomy to the locality in accordance with the principle of self-government according to the will of the people in the locality and shall promote the role of a local administration to be the key agency in the provision of public service…" and Article 283 of the Constitution states that "All local government organisations shall have power and duties to oversee and to provide the public services for the benefit of local people…."

Nonetheless, most Thai local administrative organisations have faced some problems in the provision of waste management service. First of all, they do not have enough available land to construct waste disposal sites to process the waste generated in their areas. Moreover, there has been resistance from local citizens against the local administrative organisations'

waste disposal sites because they do not want their household areas to be affected by the dirtiness and bad odours from those sites. As a result, many local administrative organisations have disposed the waste by landfilling or burning it in the open areas to avoid the dirtiness and odour problems, but these methods do not meet the sanitary standard and can cause environmental problems. In addition, local citizens in general have a lack of knowledge and public awareness on waste management problems so they are not interested in waste reduction and waste separation at the source for the utilisation. Therefore, the amount of waste and its related problems has been growing continuously (Pollution Control Department, 2016a, p. 3).

When the national government under the National Council for Peace and Order (NCPO) came into office in 2014, waste management was the main issue that this government was concerned with, so it was set as a national agenda. After that it was transformed into a national roadmap, a national master plan, and a national operational plan respectively. In brief, these plans are based on the principles of reducing, reusing and recycling waste. The majority of waste will be separated at the source for reusing and recycling while the rest will be properly disposed of, in order to prevent and reduce environmental impacts. Furthermore, energy is regarded as a by-product of local governments' waste disposal. The national government will support the private sector to invest in waste-to-energy businesses relevant to the waste disposal (Pollution Control Department, 2016a, pp. 3-4). This chapter will present the nature and scale of Thailand's waste management problems, national policies, core agencies, budgeting processes of waste management, how they can be relevant to collaboration, and potential forms of collaborations for waste management of the local administrative organisations.

5.1 The Nature and Scale of Thailand's Waste Management Problems

This section provides the context for the discussion of national policies and the three case studies of this thesis by explaining the types of waste management problems that Thailand faces, and the ways in which waste disposal has historically been undertaken. In Thailand, in theory there are four types of waste according to the Thai public policies on waste management: communities' general waste, communities' hazardous waste, infectious waste and industrial hazardous waste (The Pollution Control Department, 2016, p.7). Although there are four types of waste, just three types are subject to collaborations for waste management of local administrative organisations. These three types are communities' general waste, communities' hazardous waste and infectious waste.

The first two types are directly generated by communities which are under the responsibility of local administrative organisations. These types of waste are therefore required to be managed and disposed of by local administrative organisations. Even if the infectious waste is directly under the responsibility of public hospitals or sub-district health promotion hospitals, if a hospital is located in the area under the control of a local administrative organisation, this means the infectious waste from that hospital is managed and disposed of by that local administrative organisation. Unlike other types, the industrial hazardous waste is managed and disposed of by the private sector – i.e. industrial companies and the Ministry of Industry.

5.1.1 Communities' General Waste Management Problems

Communities' General Waste is defined as waste which is generated by activities in a community. A community in this context is an area that covers households, business establishments, central business districts, shops, entertainment spots, fresh markets and other institutions. This type of waste includes organic waste (e.g. food waste, fallen leaves and grass), recyclable waste (e.g. glass, paper, material, plastic, aluminium and rubber), and general waste (e.g. textile scraps and other scraps). When a community's general waste has been transported to waste disposal plants but has not been sanitarily disposed of, it is called 'waste residue.' However, the waste which has been left in other places or on empty lands, is not counted as waste residue (The Pollution Control Department, 2016, p.7).

The rate of the generation of the community's general waste in Thailand (kg. /person/day) has been annually increasing due to an increasing population and increasing consumption of non-reusable packaging. For example, the rate shifted from 1.04 kg. /person/ day in 2010 to 1.11 kg. /person/day in 2014. The top-ten provinces with the highest rate of the community's general waste generation were Bangkok, Nakornrachasima, Samutprakarn, Chonburi, Khon Kaen, Chiang Mai, Udon Thani, Nonthaburi, Songkhla and Buriram respectively (The Pollution Control Department, 2016, p. 9). The amount of these communities' general waste in the form of waste residue, was estimated to be approximately 30.49 million metric tons by the Ministry of Natural Resources and Environment in 2015.

The second highest range of the amount of waste residue was from 500,001 to 1,000,000 metric tons. The provinces in this range were Kanchanaburi, Nakornrachasima, Khon Kaen,

Krabi, Phetchaburi, Phranakhon Sri Ayutthaya and Prachinburi. The highest range was from 1,000,001 metric tons upwards. Samutprakarn, Chonburi, Songkhla, Nakhon Si Thammarat and Suratthani were the provinces that had amounts of waste residue within this highest range (The Pollution Control Department, 2016, p. 7). The waste residue needs to be sanitarily stored and disposed of because it can cause environmental pollution. For example, it causes water pollution when its leachate leaks into natural water sources. Furthermore, smoke from burning the waste residue in an open space can cause air pollution. Finally, the waste residue can be a source of various diseases. These are some of the reasons why it can affect local people's health and livelihood (The Pollution Control Department, 2016, p. 8).

The community's general waste will be sent to a waste disposal plant for its disposal. Currently there are 2,450 waste disposal plants in Thailand. Local administrative organisations oversee these disposal plants, most of them using a landfill method and only 480 disposal plants using a sanitary disposal method. The amount of annual sanitary disposed waste is 7.88 million metric tons or approximately 30.1 per cent of total waste, whereas the amount of annual reused waste is 4.82 million metric tons or 18.4 per cent of total waste. Moreover, there are 18 waste disposal plant projects that have been allocated budgets by the government for their construction, but their construction either cannot commence, or the construction is finalised but the disposal plants cannot operate (The Pollution Control Department, 2016, pp. 10-11).

There are two reasons why the construction of these disposal plants cannot begin even though the budgets have been approved. First, it is the influence of local politics in their

areas that obstructs the construction. The second reason is the local people's opposition to these projects (The Pollution Control Department, 2016, p. 11). In the cases where the construction is finalised, there are four possibilities why these disposal plants cannot operate. First, a local administrative organisation which is authorised to manage a disposal plant may not be able to reach a collaborative agreement with other local administrative organisations nearby, on sharing this disposal plant. Second, operations are obstructed by the local politics of that area. For example, operating a disposal plant requires additional resources. As a result, some local people are afraid that there will be increases in waste collection fees. Therefore, these local people do not support local politicians who let a disposal plant operate. For this reason, the local politicians in their area decide not to activate a disposal plant in order to reserve their popularity among local voters.

The third reason is that the waste which is brought to a disposal plant has compositions that are different from the compositions that the pre-study and design of a disposal plant may have indicated. Therefore, it can cause operational problems for a disposal plant if it has been sent incompatible compositions that it cannot process. The final reason is the opposition from local people for several reasons. Firstly, some disposal plants have not applied the sanitary principles when disposing the waste. As a result, they release bad smells that affect local people's lives. Thus, the local people complain about the bad smells and oppose to the project. Also, some local administrative organisations did not organise a public briefing to inform local people of their waste disposal plants before implementing the projects (The Pollution Control Department, 2016, pp. 10-11).

There are also some more general problems that constrain the ability to deal effectively with a community's general waste. First, it is difficult for a local administrative organisation to provide the land for constructing a waste disposal plant since land prices in Thailand at the present time are very expensive. Furthermore, some available land consists of degraded forests or governmental lands. Therefore, the local administrative organisation spends much time to get permission to use these lands, or is not able to be granted permission. Second, executive bodies of some local administrative organisations do not place importance on waste management. For example, the centralised waste management cannot be operated by some small local administrative administration because their executive bodies do not accept this approach.

Besides, some local administrative organisations do not have the continuity of their waste management policies when there is a change in membership of their executive board. Moreover, most local administrative organisations have limited budgets and insufficient equipment required for waste collection, transportation and disposal. They also lack adequate waste collection and transport systems to support the waste separation at its source. One of the reasons that these local administrative organisations have limited budgets for waste management is ineffective collection of waste collection fees. That is, they cannot collect the waste collection fees from all local people in their areas. In addition, the rate of the fees is set too low so the fees that are collected are not equal to the costs of the waste management (The Pollution Control Department, 2016, pp. 12-13).

Second, in some local administrative organisations, local people don't approve to have waste disposal plants in their areas. For these reasons, the waste disposal plants which have been already constructed cannot activate their operations, and the new waste disposal plants cannot be constructed. Moreover, some local people oppose the centralised waste management, so this approach also cannot be operated. Besides, there is a lack of public awareness on the necessity of waste separation at its source, and people use packaged products which are difficult to be disposed of such as plastic carry bags and foam boxes. At a policy level, there is a lack of collaboration between different organisations responsible for the implementation of public policies, laws, operational plans and budget approval on waste management. There is also a lack of collaboration at the operational level. For example, local people, tourists and entrepreneurs do not have the public awareness and do not collaborate in separating waste at the source and reducing the use of plastic and foam products (The Pollution Control Department, 2016, pp. 12-13).

5.1.2 Community Hazardous Waste Management Problems

Community hazardous waste is defined as poisonous waste which is generated by households and central business districts (CBDs), for instance hotels, airports, petrol stations, photo centres and dry cleaners. Examples of this type of waste are flashlight batteries, light bulbs, chemical containers and electronic equipment (The Pollution Control Department, 2016, p.7). In 2014, the total amount of community hazardous waste was approximately 0.58 million metric tons. It had increased by 2.4 per cent compared to the amount of total community hazardous waste in 2013. This type of waste can be divided into

two groups: electrical and electronic waste (e-waste) and other community hazardous waste (The Pollution Control Department, 2016, p. 13).

Electrical and electronic waste is approximately 65 per cent of the total community hazardous waste. Thus, this is the major part of community hazardous waste. Examples of e-waste are televisions, air conditioners, fridges, washing machines, computers, CD/DVD players and digital cameras. Thailand recently changed the television system from the analogue system to the digital system. This made analogue televisions become waste in large numbers. Furthermore, people had started to use alternative energy sources, for example, fuel tablets and solar cells. As a result, electrical and electronic devices are likely to become community hazardous waste in the near future. Other community hazardous waste is batteries and chemical containers. Approximately 35 per cent of the total community waste is hazardous waste (The Pollution Control Department, 2016, p. 13).

There are three major factors that play a part in hazardous waste management problems: local administrative organisations, hazardous waste disposal plants and local people. That is, most local administrative organisations do not have hazardous waste separation, collection and transportation systems. Hence, the hazardous waste gets disposed with the general waste. Moreover, there are only 11 hazardous waste disposal plants in Thailand, and almost all of them are located in the central region. As a result, the transportation and disposal costs of hazardous waste become expensive. These disposal plants are managed by local administrative organisations. The second highest range of the amount of community hazardous waste is from 4,001 to 5,000 metric tons per year. There are seven provinces in

this range consisting of Udonthani, Roi-et, Srisaket, Surin, Chonburi, Nakhon Si Thammarat and Songkhla. The highest range is 5,001 metric tons or above per year. There are five provinces in this range consisting of Bangkok, Nakornrachasima, Khon Kaen, Ubon Ratchathani and Chiang Mai. In terms of the local people, there is generally a lack of public awareness and public participation in the separation of hazardous waste which is needed for the disposal of this type of waste (The Pollution Control Department, 2016, pp. 13-14).

5.1.3 Infectious Waste Management Problems

Infectious waste is defined as waste with amounts or intensities of germs that can cause illnesses when people come into contact with them. This type of waste also covers waste generated by medical diagnoses or treatments, immunisations and disease experiments, and human and animal autopsies as written in the Public Health Act B.E. 2535 (The Pollution Control Department, 2016, p.7). The amount of infectious waste has increased annually. In 2014, there were approximately 52,147 metric tons of infectious waste when there were 40,000 metric tons of infectious waste in 2010. The majority of infectious waste (57 %) is generated by hospitals under the Ministry of Public Health (public hospitals). 48 per cent of infectious waste is generated by private hospitals and small-sized hospitals such as medical clinics, tambon (sub-district) health promotion hospitals (THPHs), primary health or healthcare centres (PHCs) and animal hospitals (The Pollution Control Department, 2016, p. 16). The sub-district health promotion hospitals are hospitals that are in the areas under local administrative organisations' responsibility. Infectious waste needs to be disposed of by burning it in incinerators. In Thailand, there are 85 incinerators that can sanitarily dispose of the infectious waste. These incinerators belong to different organisations. That is, 68

incinerators belong to public hospitals, 10 incinerators belong to local administrative organisations, and seven incinerators belong to private companies (The Pollution Control Department, 2016, p. 16).

The Department of Health of the Ministry of Public Health and the Department of Pollution Control of the Ministry of Natural Resources and Environment have supported many sectors to have infectious waste disposal plants in many areas, based on the results of the study of infectious waste disposal projects of effective local administrative organisations in 2009. Some methods depended on patterns of clustering, amounts of infectious waste of each area, forms of infectious waste management, routes of waste transportation, and capabilities of existing incinerators. The problems of infectious waste management are that some of the infectious waste is disposed with the community's general waste or is refused at inappropriate sites (The Pollution Control Department, 2016, p. 16).

There are three factors that are related to infectious waste management problems: infectious waste incinerators, formal infectious waste management systems, and laws and regulations on infectious waste management. Firstly, the number of existing infectious waste incinerators does not meet the amount of infectious waste that needs to be disposed. In addition, these incinerators are in the same region, so they do not cover all regions of the country. Also, some incinerators are too old and have been operating without following the sanitary principles. Secondly, there is no certified infectious waste management system to be employed. For example, there is no certified infectious waste transportation system that small-sized hospitals can employ. As a result, the small-sized hospitals have to transport the

infectious waste together with the community's general waste. Moreover, there is no law or regulation that directly controls and monitors the infectious waste management. There is only the Ministry of Public Health's Decree on Infectious Waste Manifest System B.E. 2556. Therefore, there is no standard for controlling and monitoring the transportation and the disposal of the infectious waste. As a result, there are incidents which reflect the problems of the infectious waste management, for example, infectious waste has been refused at inappropriate sites in some areas (The Pollution Control Department, 2016, p. 16).

5.1.4 Industrial Hazardous Waste Management Problems

Industrial hazardous waste is defined as hazardous waste that is generated by industrial plants under the Ministry of Industry, as written in the Factory Act B.E. 2535 and the Hazardous Substance Act B.E. 2535 (The Pollution Control Department, 2016, p.7). In 2014, there were approximately 2.06 million metric tons of industrial hazardous waste. The Thai government has attempted to reduce this type of waste by implementing policies that support the reduction of hazardous waste through manufacturing systems and enhancing the capacities of industrial plants to make profits from their industrial waste. In addition, many private companies have implemented the 'Zero Waste to Landfill' policy to find ways to use their industrial waste for benefits instead of disposing it in a landfill. Besides, the private sector has three sanitary landfill sites, 12 incinerators and 446 recycling factories which received permission from the Ministry of Industry for disposing industrial waste that cannot be made into any other beneficial products. Nevertheless, there are some industrial hazardous waste products that have been inappropriately disposed. For example, industrial hazardous waste that has been refused elsewhere has been discarded in a public space or

landfill, together with the community's general waste. This can have negative effects on the environment and on local people's health (The Pollution Control Department, 2016, pp. 17-18).

There are two major factors that are related to problems of industrial hazardous waste management: industrial hazardous waste disposal plants, and laws and regulations on industrial hazardous waste disposal First, the number of industrial hazardous waste disposal plants does not meet the amount of industrial hazardous waste to be disposed. Furthermore, these waste disposal plants are only located in the central and eastern regions of the country. As a result, the costs of transportation from the sources of the waste to the industrial waste disposal plants that are located in other regions become high. Besides, some of the available waste disposal plants are employing incorrect disposal methods. Secondly, at the present time, there are no laws and regulations that effectively control and monitor industrial hazardous waste management from the waste collection until the waste disposal process. Therefore, some industrial plants leave their industrial waste at inappropriate areas (e.g. wilderness areas or old landfill sites) instead of sending it to the waste disposal plants (The Pollution Control Department, 2016, p. 18).

5.2 National Policies on Waste Management

There are three major policies on waste management (Pollution Control Department, 2016b, p. 5): National Roadmap on Solid Waste and Hazardous Waste Management B.E. 2557 (A.D. 2014), National Master Plan on Solid Waste Management B.E. 2559-2564 (A.D.

2016-2021), and National Operational Plan, Thailand Zero Waste in Accordance with Objectives of the Pracha Rath for 1 Year B.E. 2559-2560 (A.D. 2016-2017).

5.2.1 National Roadmap on Solid Waste and Hazardous Waste Management B.E. 2557 (A.D. 2014)

The National Roadmap on Solid Waste and Hazardous Waste Management B.E. 2557 (A.D. 2014) is a broad policy which tackles four major issues (Pollution Control Department, 2016b, p. 6):

(1) Eliminating accumulated solid waste.

(2) Developing a new form of waste management.

(3) Setting regulations and measures for solid waste and hazardous waste management.

(4) Creating civic discipline on waste management.

The fourth issue regarding civic discipline on waste management shows the potential that citizens will engage in the waste management methods of local administrative organisations, possibly in the form of collaboration.

5.2.2 National Master Plan on Solid Waste Management B.E. 2559-2564 (A.D. 2016-2021)

The National Master Plan on Solid Waste Management B.E. 2559-2564 (A.D. 2016-2021) is a policy that provides more significant contents of waste management consisting of directions, goals and measures as follows (Pollution Control Department, 2016b, pp. 7-8):

Directions

(1) Following the 3Rs principle which is composed of reduce, reuse, and recycle waste.

(2) Using appropriate waste management systems, especially centralised waste management and waste-to-energy management.

(3) Emphasising the responsibility and participation of all sectors.

Goals

(1) Eliminating 100 per cent of accumulated solid waste by 2019.

(2) Eliminating 100 per cent of infected waste by 2020.

(3) Eliminating 100 per cent of industrial hazardous waste by 2020.

(4) Eliminating more than 30 per cent of community hazardous waste by 2021.

(5) Operating more than 50 per cent of waste separation at its source by 2021.

(6) Eliminating more than 75 per cent of community solid waste by 2021.

Measures

(1) Reducing solid waste and hazardous waste at its source by:

- Reducing waste generation at the source
- Separating and recycling waste
- Producing environmentally friendly (eco-friendly) goods and service provision and promoting the use of eco-friendly goods and services.

(2) Enhancing efficiency to manage solid waste and hazardous waste by:

- Ensuring local administrative organisations and provinces have efficient waste collection, transportation and disposal systems
- Having centralised waste disposal plants (clusters) using integrated waste disposal technologies
- Having enough solid waste and hazardous waste collection and disposal sites
- Developing and amending laws on waste management and its law enforcement in order to increase efficiency of waste management.

(3) Support waste management by:

- Creating public awareness on waste management from youth to adult citizens
- Developing knowledge and technologies on waste collection, transportation, disposal and utilisation
- Developing databases on waste management and linking them together
- Creating motivation to efficiently manage waste through social and economic mechanisms.

The third direction of the master plan regarding the responsibility and the participation of all sectors in waste management indicates the possibility that all related sectors can collaborate. Moreover, the second measure of this master plan is about providing the skills and expertise of local administrative organisations and other related sectors with regards to the management systems, technologies, operational sites, laws, and law enforcement on waste management. The last measure of the master plan is also about providing the skills and expertise of local administrative organisations and other sectors related to waste

management with regards to public awareness, knowledge, databases (information), and the motivation to perform efficient waste management.

5.2.3 National Operational Plan, Thailand Zero Waste in Accordance with Objectives of the Pracha Rath for 1 Year B.E. 2559-2560 (A.D. 2016-2017)

The National Operational Plan, Thailand Zero Waste in Accordance with Objectives of the Pracha Rath for 1 Year B.E. 2559-2560 (A.D. 2016-2017) is an operational plan that has three major goals as follows (Pollution Control Department, 2016b, p. 14):

(1) 100 per cent of villages or communities have at least one of the hazardous waste accumulation points per village or community.

(2) 85 per cent of infected waste will be properly eliminated.

(3) 70 per cent of industrial hazardous waste will be properly eliminated.

The first goal of the operational plan shows the involvement of villages and communities in waste management. It is possible that they will collaborate with local administrative organisations, and/or other related sectors. Besides, the term 'Pracha Rath' mentioned in the name of this operational plan refers to the public-private partnership project which is initiated by the national government aiming to boost the economy and income of local communities throughout the country, as the local communities are considered to be a major mechanism to move the national economy forward (Rungfapaisarn, 2017). This project is a major enabler scheme of the Public-Private Collaborative Committee which is a public-

private collaboration between the national government and the heads of large Thai corporations with the objectives to reduce inequality, improve human capability, and increase competitiveness of Thai economy (Vongkusolkit, 2016). This implies that the operational plan on waste management is based on the collaborative approach and lies within the collaboration between the government and the private sector on a national level.

5.3 Core Agencies of National Policies on Waste Management

There are four core agencies who perform as the regulators of the national policies on waste management, consisting of the Ministry of Public Health, the Ministry of Industry, the Ministry of Natural Resources and Environment, and the Ministry of Interior, whereas there are two core agencies who perform as the operators of these national policies consisting of the Ministry of Interior and local administrative organisations (Pollution Control Department, 2016b, p. 10).

5.3.1 Regulators

(1) Ministry of Public Health

The Ministry of Public Health performs within the extent of the Public Health Act B.E. 2535 (A.D. 1992) (Pollution Control Department, 2016b, p. 10). It was assigned by the national government to create regulations on waste management including waste management at the source, waste transportations and waste disposals so that local administrative organisations would have the guidelines for making their local ordinances on waste management (The Pollution Control Department, 2016a; p. 59).

(2) Ministry of Industry

The Ministry of Industry performs within the extent of the Factory Act B.E. 2535 (A.D. 1992) (Pollution Control Department, 2016b, p. 10). It was assigned by the national government to create regulations on industrial hazardous waste management (The Pollution Control Department, 2016a; p. 59).

(3) Ministry of Natural Resources and Environment

The Ministry of Natural Resources and Environment performs within the extent of the Enhancement and Conservation of the National Environmental Quality Act B.E. 2535 (A.D. 1992) (Pollution Control Department, 2016b, p. 10). It was assigned by the national government to present public policies, action plans, strategies, standards and supporting academic principles of solid waste and hazardous waste management (The Pollution Control Department, 2016a; p. 58). After that, it assigned the Pollution Control Department to create the national master plan on solid waste management B.E. 2559-2564 (A.D. 2016-2021) and the national operational plan, Thailand Zero Waste in accordance with objectives of the Pracha Rath for one Year B.E. 2559-2560 (A.D. 2016-2017) (Pollution Control Department, 2016b, pp. 15-16).

(4) Ministry of Interior

The Ministry of Interior performs within the extent of the Maintenance of the Cleanliness and Orderliness of the Country Act B.E. 2560 (A.D. 2017) (Pollution Control Department, 2016b, p. 10). According to the cabinet resolution on 12 May 2015, the Ministry of Interior

is a core agency that is responsible for resolving overall solid waste problems of the country, while the Ministry of Natural Resources and Environment and other related organisations are supporting the operation of the Ministry of Interior (Pollution Control Department, 2016, p. 15).

5.3.2 Operators

There are two core bodies that oversee and act as the operators of the national policies on waste management: the Ministry of Interior and local administrative organisations (Pollution Control Department, 2016b, p. 10).

(1) Ministry of Interior

The Ministry of Interior is also a regulator as mentioned earlier. In terms of an operator, according to the cabinet resolution on 3 May 2016, this ministry was assigned to oversee provinces and local administrative organisations in creating provincial solid waste management plans in accordance with the national master plan on solid waste management B.E. 2559-2564 (A.D. 2016-2021), and operating solid waste management regarding the national master plan and the national operational plan (Pollution Control Department, 2016b, pp. 15-16).

(2) Local Administrative Organisations

There are two types of local administrative organisations in Thailand: special and general local administrative organisations.

(2.1) Special Local Administrative Organisations

Special local administrative organisations consist of only the Bangkok Metropolitan Administration and the Pattaya City. The Bangkok Metropolitan Administration operates waste management within the extent of the Bangkok Metropolitan Administration Act B.E. 2528 (A.D. 1985) and the Pattaya City operates its waste management within the extent of the Pattaya City Administration Act B.E. 2542 (A.D. 1999) (Pollution Control Department, 2016b, p. 10)

(2.2) General Local Administrative Organisations

General local administrative organisations consist of provincial administrative organisations, municipalities, and sub-district (tambon) administrative organisations (SAOs) throughout the country. Provincial administrative organisations operate waste management within the extent of the Provincial Administrative Organisation Act B.E. 2540 (A.D. 1997). Municipalities operate their waste management within the extent of the Municipality Act B.E. 2496 (A.D. 1953), and sub-district (tambon) administrative organisations (SAOs) operate their waste management within the extent of the Sub-District Council and Sub-District Administration Act B.E. 2537 (A.D. 1994) (Pollution Control Department, 2016b, p. 10).

Generally, these general local administrative organisations have the direct responsibilities to manage waste within their areas while national government agencies such as the Department of Environmental Quality Promotion and the Pollution Control Department both play supporting roles in solving waste management problems and setting standards and

preparation guidelines for the local administrative organisations. In case of industrial waste, the Department of Industrial Works will support them in the same way as the Department of Environmental Quality Promotion and the Pollution Control Department do (Anantanatorn et al., pp. 8-9).

In terms of the operation under the current national policies on waste management, the local administrative organisations are assigned to work with the provinces in creating the provincial solid waste management plans in accordance with the national master plan on solid waste management B.E. 2559-2564 (A.D. 2016-2021) as mentioned earlier. These provincial plans need to be in the frame of the national policies. Moreover, if local administrative organisations need to implement their own waste management initiatives within the budgets allocated by the national government, they are required to submit the local administrative organisations' waste management plans when applying for the national government budgets. These plans need to be in the frame of the provincial policies (interview with national government official B on 20 May 2017). In the next section of this chapter, the processes of budgeting for local administrative organisations' waste management plans will be presented.

5.4 Processes of Budgeting for Local Administrative Organisations' Waste Management Plans

Thai local administrative organisations are able to receive budgets for implementing their waste management plans in order to accomplish the national goals on solid waste and hazardous waste management from three major budget sources: national budgets, supporting

budgets from local administrative organisations (e.g. waste collection fees collected by local administrative organisations), and budgets from the investment or the joint investment of the private sector in accordance with the Private Investment in State Undertaking Act B.E. 2556 (Public-Private Partnership Act A.D. 2013) (The Pollution Control Department, 2016a, p. 25).

5.4.1 The National Budget Approval Process

If local administrative organisations need to receive national budgets, they need to follow the national budgeting process which has nine major steps as presented in Figure 5.1 (interview with national government official B on 20 May 2017):

(1) In each financial year, the Office of Natural Resources and Environmental Policy and Planning, the Ministry of Natural Resources and Environment informs provinces to create their provincial plans on waste management.

(2) Each province sets up the provincial committee for formulating, monitoring and evaluating action plans for waste management. Representatives of local administrative organisations are members of this committee as well.

(3) The waste management action plans which have been approved by the provincial committees will be submitted to the Office of Natural Resources and Environment by the provincial governors.

(4) The Office of Natural Resources and Environment will set up the national working group to consider these action plans based on the submitted document from the provincial governors.

(5) The national working group will send the action plans for which their documents have passed the criteria of the working group towards the sub-committee of the National Environment Board to consider these plans through the national analyses and national priorities.

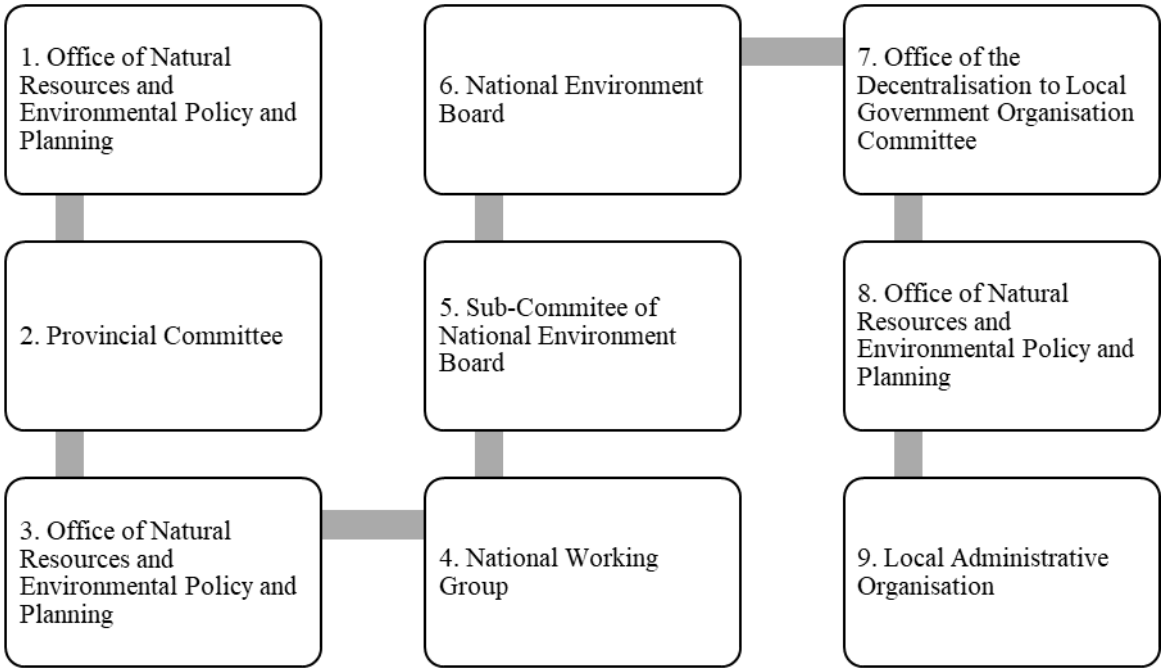
(6) The sub-committee of the National Environment Board will send the action plans that have passed their criteria to the National Environment Board for approval.

(7) The National Environment Board will inform the Office of the Decentralisation to the Local Government Organisation Committee (ODLOC) of the results of the action plans that have been approved.

(8) The Office of Natural Resources and Environmental Policy and Planning will allocate the national budget to each action plan and will inform the results to provincial governors whose action plans have been approved.

(9) Local administrative organisations will receive their budgets, and execute their action plans with the assistance of the provinces that they are located in.

Figure 5.1: National Budget Approval Process

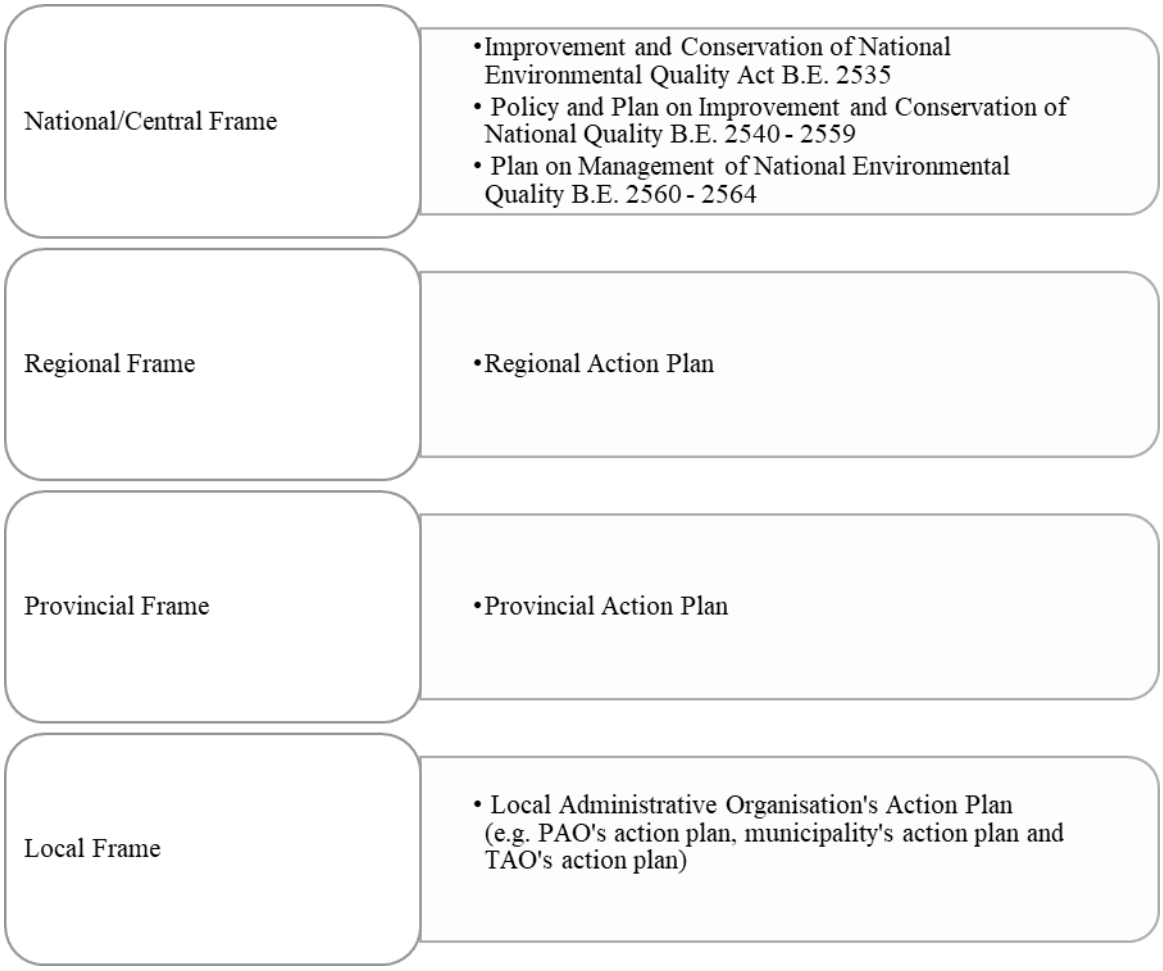


However, the Cabinet Resolution dated in B.E. 2560 (A.D. 2017) assigned the Ministry of Interior to the Department of Local Administration, to replace the Office of Natural Resources and Environment Policy and Planning and to take charge of this process when the waste management action plans of local administrative organisations from 2017 onwards were considered (interview with national government official C on 29 May 2017). The Office of Natural Resources and Environment Policy and Planning were still considering other environment-related action plans and waste management action plans of local administrative organisations which had been submitted before 2017. The process would take at least one year to be finished (Interview with the national government official B on 20 May 2017).

5.4.2 The Policy Frames for the National Budget Approval Process

The action plans of local administrative organisations that need budget approval from the national government need to be formed within the provincial policy frame, the regional policy frame, and the national policy frame on waste management respectively as presented in Figure 5.2. To begin with, on a national level, the public policies that are related to waste management include the Improvement and Conservation of National Environmental Quality Act B.E. 2535, the Policy and Plan on Improvement and Conservation of National Environmental Quality B.E. 2540 – 2559, and the Plan on Management of National Environmental Quality B.E. 2560 -2564. The regional plan, therefore, needs to be within the frames of these national policies. Next, the action plan on a provincial level needs to be within the framework of the regional plan. Finally, the action plan of the local administrative organisations needs to be within the framework of the provincial plan. In other words, it needs to be compatible with all the policy frames above itself.

Figure 5.2: Policy Frames for the National Budget Approval Process



5.5 Potential Forms of Collaboration for Waste Management of Local Administrative Organisations

Local administrative organisations are the key agencies to operate solid and hazardous waste management in accordance with the national government policies on solid waste and hazardous waste management. Moreover, these national policies open opportunities for the

local administrative organisations to create collaborations with other sectors by involving related sectors in waste management. Thus, there are four potential forms of waste management collaboration for local administrative organisations based on the current national policies on waste management: collaboration between local administrative organisations and local citizens, collaboration between local administrative organisations and local hospitals, collaboration between local administrative organisations and the private sector, and collaboration between local administrative organisations themselves (interview with national government official A on 20 April 2017; Pollution Control Department, 2016a, p. 16).

5.5.1 Collaboration between Local Administrative Organisations and Local Citizens

Collaboration between local administrative organisations and local citizens is a potential form of collaboration for waste management in accordance with the National Master Plan on Solid Waste Management B.E. 2559-2564 (A.D. 2016-2021), especially regarding the waste reduction and waste separation at the source by enhancing civic awareness on waste management problems and adjusting citizens' consumption behaviours in order to reduce the generation of waste.

5.5.2 Collaboration between Local Administrative Organisations and Local Hospitals

Collaboration between local administrative organisations and local hospitals is a potential form of collaboration for waste management in accordance with the National Operational Plan, and with Thailand Zero Waste in Accordance with Objectives of the National Master Plan on Solid Waste Management B.E. 2559-2564 (A.D. 2016-2021). The National Operational Plan encourages local administrative organisations and sub-district health promotion hospitals in their governed areas to work together in managing infectious waste from these local hospitals.

5.5.3 Collaboration between Local Administrative Organisations and the Private Sector

Collaboration between local administrative organisations and the private sector is a potential form of collaboration for waste management in accordance with the Private Investment in State Undertaking Act B.E. 2556 (2013). This act permits local administrative organisations to invite the private sector either to invest in local administrative organisations or to jointly invest in costly waste management projects with other local administrative organisations, for instance, construction of large incinerators for waste disposal and waste-to-energy plants. For example, there is a waste-to-energy plant operating in the Phuket province that can generate electricity from waste.

5.5.4 Collaboration between Local Administrative Organisations

Collaboration between local administrative organisations is a potential form of collaboration for waste management in accordance with the most evident action plan compared to other forms. For years, local administrative organisations set budgets and designed waste disposal systems based on each locality. For this reason, waste disposal was a task that local administrative organisations worked on separately. Although local administrative organisations had their waste disposal systems installed, most of them were not able to continuously operate those systems because of the financial shortage. This was due to the fact that most local administrative organisations could not collect waste management fees from citizens at the rate that really reflected the costs of their waste disposal system (Pollution Control Department, 2006).

In addition to this, local government officials who were assigned to oversee the waste disposal systems did not have knowledge and skills on waste management, so the waste disposal systems were inefficiently operated causing negative impacts on the environment in some areas. Furthermore, waste disposal systems of some local administrative organisations were opposed by local citizens. As a result, local government officials were denied entry to the waste disposal sites by the local citizens (Pollution Control Department, 2006).

To resolve the problems that have been mentioned, the national government has worked on a policy to help encourage local administrative organisations located in nearby areas to work together as clusters. These clusters are aimed at constructing waste disposal centres, and

utilising waste in various forms. For example, composting and waste-to-energy (electricity generation). The Ministry of Natural Resources and Environment assigned the Pollution Control Department to cluster local administrative organisations throughout the country. Clustering was based on the Geographic Information System (GIS). Moreover, the Pollution Control Department coordinated clustering with regional environmental offices throughout the country in an attempt to resolve related significant factors and the needs of local citizens of each area. They also emphasised the readiness and the willingness of local administrative organisations (Pollution Control Department, 2006).

As a result, they used the amount of waste, extent of waste management service, distance of waste transportation, and local waste management as the reasons to cluster specific local administrative organisations. Consequently, in 2006, they identified the clusters of local administrative organisations that will use integrated waste disposal systems emphasising the utilisation of waste in the forms of composting and electricity generation in three forms: large, medium and small clusters (Pollution Control Department, 2006).

The first form is the Large Cluster. There would be 10 large clusters throughout the country. They could cover more than 500 metric tons of waste per day per cluster, collect waste from the areas within 50 kilometres, and operate the integration of many waste disposal technologies such as waste separation plants, composting, waste-to-energy (WTE), and burning waste with an incinerator. The next one is the Medium Cluster. There would be 51 medium clusters throughout the country. These could cover 50 to 500 metric tons of waste

per cluster per day, collect waste from the areas within 30 kilometres, and operate the integration of one to two waste disposal technologies (Pollution Control Department, 2006).

The Medium Cluster is divided in to three sub forms: M1, M2 and M3. There would be 10 M1 clusters throughout the country. These could cover 250 to 500 metric tons of waste per cluster per day and collect waste from the areas within 30 kilometres. Next, there would be 28 M2 clusters throughout the country. These could cover 100 to 250 metric tons of waste per cluster per day and also collect waste from the areas within 30 kilometres. Furthermore, there would be 12 M3 clusters throughout the country. They could cover 50 to 100 metric tons of waste per cluster per day and collect waste from the areas within 30 kilometres (Pollution Control Department, 2006).

The last type of cluster is the Small Cluster. There would be six small clusters throughout the country. They could cover less than 50 metric tons of waste per cluster per day, collect waste from the areas within 30 kilometres, and operate only small waste disposal technologies which are researched and developed within Thailand (Pollution Control Department, 2006). There were 67 clusters for waste management of local administrative organisations identified in 2006. Nonetheless, more clusters have been identified in 2015. The Pollution Control Department has identified the waste management clusters in each province for all 77 provinces of Thailand. In total, there are 270 clusters consisting of 34 large clusters, 155 medium clusters, and 81 small clusters (Pollution Control Department, 2015).

Conclusion

There are four types of waste management problems in Thailand with regards to the communities' general waste, the communities' hazardous waste, the infectious waste and the industrial hazardous waste management problems that are the context the formulation of national policies on waste management. As a result, the national government of Thailand has announced the national policies on solid waste and hazardous waste management in 2015. These policies consist of both short-term and long-term plans for the whole cycle of waste management. Technical, financial and other support is provided to local administrative organisations. Information about waste management is planned to be disseminated to further build on the capacity of local administrative organisations in waste management. Participation of communities and other sectors is promoted so waste management goals can be achieved together (Climate and Clean Air Coalition Municipal Solid Waste Initiative, 2015).

This shows that the national government policies provide the potential for local administrative organisations to initiate collaboration with other sectors and to develop their capabilities in waste management. The policies also suggest the possible forms of collaboration for waste management for the local administrative organisations such as collaboration with local citizens, local hospitals, the private sector, and between other local administrative organisations. This national policy context provides useful guidelines for the empirical chapters of this thesis that will be presented hereafter. They will also discuss the capacity of local administrative organisations to collaborate for waste management, and

forms of their collaboration that are created in practice compared to the objectives of the national policies.

CHAPTER 6

COLLABORATION FOR WASTE MANAGEMENT IN THE BANGKOK METROPOLITAN ADMINISTRATION (BMA)

Introduction

This chapter is about the collaboration for waste management in the Bangkok Metropolitan Administration (BMA). To do this, the chapter draws on three research methods consisting of document study (governmental reports), semi-structured interview (four interviews with representatives of the BMA, a district office, a community and a private company), and direct observation (a prototype community that has implemented waste management collaboration in the BMA). Some of the interviews are cited in this chapter but others only provided background information. BMA is a LAO that has the authority to administer the local government of Bangkok, the capital city of Thailand. The reason why the BMA was selected is that it is a special LAO which is outstanding in waste management and collaborating with local citizens and other organisations or groups in their waste management, derived from the discussions with Thai experts in waste management and Thai local government.

Moreover, it is significant for collaboration for waste management of LAOs in Thailand because it is an organisation that initiated a waste management collaboration using the concept of CBM (community-based solid waste management) for LAOs. After that, it has

set prototypes of CBM communities for communities both in the BMA and other LAOs. Furthermore, the implementation of the BMA's waste management collaboration has an impact on policymaking on waste management at a national level. The Ministry of Interior has adopted a policy about waste management collaborations of the BMA and applied it to create a public policy on waste management collaborations for all LAOs in Thailand.

The chapter is divided into 11 sections consisting of: overview of the BMA; waste management problems in the BMA; creation of a collaboration for waste management of the BMA; development of collaboration for waste management of the BMA from past to present; other collaborative organisations; management of a collaboration for waste management of the BMA; collaborative capacities of a collaboration for waste management of the BMA; problem solving as an outcome of a collaboration for waste management of the BMA; working relationship as an outcome of a collaboration for waste management of the BMA; other benefits from a collaboration for waste management of the BMA; and future tendency and recommendations for making a collaboration for waste management more effective as follows.

6.1 Overview of the Bangkok Metropolitan Administration (BMA)

The BMA is a LAO that covers all areas of Bangkok, which has been the capital city of Thailand since 1782. It covers an area of 1,568.7 square kilometres (BMA Data Center, 2019). The current population of Bangkok is 5,701,394 (BMA Data Center, 2019). In 2014 the BMA generated 2,853.58 metric tonnes of waste per day, 11,510 metric tonnes of waste per day in 2015 and 11,530 metric tonnes of waste per day in 2016 (Department of Pollution

Control, 2015; Department of Pollution Control, 2016; Department of Pollution Control, 2017).

BMA is a special LAO. One thing that reflects the special form of the BMA is the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985), which confers to the BMA the duty to provide public services to citizens within the area of Bangkok (Kokpol, 2016, 5). Furthermore, Bangkok uses a single-tier local government system that is, having only the BMA as a LAO which is responsible for the whole area of Bangkok, whereas other provinces use a double-tier local government system, which involves a provincial administrative organisation (PAO) as an upper-tier LAO, and municipalities and sub-district administrative organisations (SAOs) as lower-tier LAOs which are responsible for the whole area of their provinces (Kokpol, 2016, 1).

This section presents two topics: the administrative structure of the BMA and the duties of the BMA: The BMA is a juristic person. The responsible area of the BMA is divided into 50 districts. The head office of the BMA is called Bangkok City Hall. The administrative structure of the BMA comprises three parts: the Governor of Bangkok; Bangkok Metropolitan Council; and departments and district offices. First, the Governor of Bangkok is the chief of the BMA and is elected by Bangkok citizens for a four-year term, working as an executive body of the BMA. The Governor of Bangkok has general duties under section 49 of the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985) about policymaking and administrating the BMA; giving commands and permissions to operate works of the BMA; appointing and removing the vice-governor of Bangkok, a secretary and

a secretarial assistant of the governor of Bangkok, presidents and members of any consultant teams and committees of the BMA; receiving commands from the cabinet, the prime minister and the minister of the interior; setting regulations for development of works of the BMA; ensuring that works of the BMA comply with the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985); being responsible for other duties authorised by the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985) and other related laws; being a chief of the BMA's civil servants and officers; and being responsible for the duties of a provincial governor, a mayor and a municipal cabinet.

Next, the Bangkok Metropolitan council works as the legislative body of the BMA. It is made up of Bangkok Metropolitan councillors elected by Bangkok citizens for a four-year term. Moreover, it has several rights and authorities granted by the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985) consisting of the right to ask questions to the governor of Bangkok and the right to propose drafts of ordinances of the BMA except budget ordinance drafts, because these must be proposed by the governor of Bangkok, and except drafts of financial ordinances, which require approval from the governor of Bangkok.

The final part comprises departments of the BMA and district offices. They are units of the BMA which are related to policymaking and policy implementation. First, departments are the units of government of the BMA divided by function. The BMA comprises 17 departments which are responsible for several tasks at a strategic level, such as the Departments of Education, Public Health, Fiscal Service, and City Planning. The department which is related to waste management in the BMA is the Department of Environment.

Second, district offices are another unit of government of the BMA which are divided by area. Therefore, there are 50 district offices in the BMA, working for 50 districts of Bangkok; for instance, Klong Toey District, Chatuchack District, Don Mueang District and Din Daeng District.

District offices are directly responsible for the provision of public services to Bangkok citizens. A district office is divided into several divisions such as Registration, Public Works and Law Enforcement. The divisions of the BMA which are related to waste management are the Division of Cleanliness and Parks Maintenance and the Division of Environment and Sanitation. The chief of each district office is called a district governor and they are Bangkok civil servants. A district governor has the authority to appoint one or more deputy governors to assist, or work on behalf of, the district governor.

Additionally, there is a district council working as a consultant team for each district governor, according to the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985). A district council has several duties consisting of making comments on development plans and budget allocations of the district office, monitoring the works of the district office, giving advice or observations about public service provisions of the district office, giving advice whenever a district governor comes to consult with a district council, appointing a committee for considering, investigating or studying things which are related to the works of a district office as stated in the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985), and operating other duties which are stated in the Bangkok Metropolis

Administrative Organisation Act, BE 2528 (1985), or are appointed by the Bangkok Metropolitan council (Kokpol, 2016, pp. 5-14).

Secondly, the duties of the BMA come from two laws (Kokpol, 2016, pp. 14-17): the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985) and the Determining Plan and Process of Decentralisation to Local Government Organisation Act, BE 2542 (1999). There are 27 duties of the BMA stated in the Bangkok Metropolis Administrative Organisation Act, BE 2528 (1985), and the duty which is related to a waste management collaboration is the duty to maintain cleanliness and orderliness in the BMA area. Additionally, there are 31 duties of the BMA stated in the Determining Plan and Process of Decentralisation to Local Government Organisation Act, BE 2542 (1999). The duty which is related to a waste management collaboration is the duty to manage waste and sewage in the BMA area.

Furthermore, the Bangkok Metropolis Administrative Organisation Act (No. 4), BE 2542 (1999), the latest amended Act, defines three types of duties of the BMA that are related to the creation of a collaboration with other organisations for any affairs, including waste management, consisting of duties carried out with other organisations, duties undertaken by the private sector, and duties carried out by a cooperative. To begin with, the duties carried out with other organisations are the activities that the BMA operates with other organisations by creating a new company together or being a shareholder of other organisations' existing companies. However, the following criteria must be met: first, the company that the BMA aims to create or become a shareholder of needs to be a company that provides public utilities

but does not impact businesses that the BMA has had before the enforcement of the Bangkok Metropolis Administrative Organisation Act (No. 4), BE 2542 (1999); second, the BMA must hold more than 50 per cent of the total shares that the company has registered. In the case where the BMA and other governmental agencies, public organisations, state enterprises or LAOs are all shareholders together, their shares are collectively counted. Furthermore, all activities must be approved by the Bangkok Metropolitan Council with at least 50 per cent of the total council members. The final criterion is that, all activities must be approved by the Minister of the Interior.

The second type of duties are the activities carried out by the private sector. The BMA can authorise a private organisation to operate activities that are within the BMA's duties, and then collect fees, service charges or other profits on behalf of the BMA. However, these activities need to be approved by the Bangkok Metropolitan Council and the Minister of Interior before they can begin. The final type of duties are the duties operated by a cooperative. The BMA can carry out its duties with other governmental agencies, public organisations, state enterprises, or LAOs by creating a cooperative which is a juristic person. A cooperative is established by creating a decree. Similarly, the cancellation of the cooperative needs to be under the enforcement of a decree. The cooperative is managed by its executive board comprising both the representative of the BMA and representatives of the other organisations within the cooperative (Sala, 2013: pp. 166-167).

Table 6.1: General Information about the Bangkok Metropolitan Administration (BMA)

Number	Type of information	Details
1.	Size of area	1,568.7 km^2
2.	Size of population	5,701,394
3.	Waste generation rates of the last three years according to national records	2,853.58 tonnes per day in 2014 11,510 tonnes per day in 2015 11,530 tonnes per day in 2016

6.2 Waste Management Problems in the Bangkok Metropolitan Administration (BMA)

Like most capital cities in the world, the BMA population has been increasing. As a result, the demands on resources of the BMA has also increased. This has led to the problem of increasing amounts of waste within the BMA area. The increasing amounts of waste together with improper waste disposal have consequently caused an increase in spending on waste disposal. For example, data shows that there were 3,636, 595.33 metric tonnes of waste generated by the population of the BMA in 2013, and the BMA spent approximately 10 million baht (approximately 22,4921 GBP) per day on waste disposal (Jitasa Foundation, 2016, p. 1-1). In addition, an officer of the Department of Environment of the BMA

explained that, before the BMA created a collaboration for waste management, BMA disposed of waste by the landfill method only. This method is not sustainable.

Since the waste of the BMA has been increasing continuously, the BMA has tried to find more landfill sites. However, there is no more space left for creating landfill sites in Bangkok because all areas have become urban areas and locate near the communities. The bad smells of landfill sites could annoy Bangkok people. If the BMA constructed a landfill site in Bangkok, people nearby would object to this. Therefore, the BMA needed to transfer waste for disposal in other provinces. At the present time, there are only transfer stations in Bangkok. BMA has signed contracts with private companies to send their trucks to collect waste from those transferred sites to their landfill sites in other provinces within 24 hours. However, the amount of waste generated in the BMA area is still increasing (Interview with a BMA official, 23/05/2017).

Moreover, the BMA has received immigrants from other provinces and commuters from other areas who are attracted by the city. It is claimed that most people in this group lack awareness and knowledge of environmental maintenance (Jitasa Foundation, 2016, p. 2-4) which waste management is part of. Thus, it is possible that the commuter-adjusted population who lack awareness and knowledge about waste management can cause waste management problems. A representative of a private company which is collaborating with the BMA in waste management also mentioned a waste management problem caused by people who lack awareness of waste management problems:

> "Since around two years ago, there had been a problem that people dropped their waste on the nearby road until the waste covered approximately 1 kilometre of the

road. Many people came to drop their waste on the road because they saw others did. Consequently, our organisation was negatively impacted by this waste because the bad smell of the waste." (Interview with a representative of a private company, 27/07/2017)

Furthermore, the BMA has waste management problems in canal-side areas because the residents are not aware of the waste management problems they are causing. For example, a community leader of a prototype community which is collaborating in waste management with the BMA stated that:

> "In the past, waste management problems always happened because our community located in canal-side areas. We had 170 households in total when 150 households located in canal-side areas. There was a problem that those people always dumped their waste into the canal." (Interview with a community leader, 25/05/2017)

It can be concluded that the waste management problems of the BMA are directly related to the continuously increasing amount of waste due to the continuously increasing of the BMA population, and the high amount of waste refuse in public areas such as on roads and in the canal because some local people are unaware of how to manage waste. These problems lead to the creation of collaboration for waste management of the BMA.

6.3 Creation of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA)

After the BMA realised there were serious waste management problems in its area, it started to create a collaboration for waste management in 2008. In the first period (2008 - 2012), the BMA, the Thai Packaging Centre (a state enterprise under the Federation of Thai Industries), and three universities (Kasetsart, Chulalongkorn and Mahidol) shared ideas to create a project for waste separation. These were pilot organisations that collaborated for waste separation. After that, the collaboration invited shopping stores in the BMA area to install a drop-off point for waste separation. It could be said that the Thai Packaging Centre was a major actor in an early period of the waste management collaboration because it was an organisation studying and working on waste separation to get recyclable waste for utilisations that came to help BMA in running a collaboration for waste separation.

Turning to the second period (2013 - present time), BMA is still collaborating with the Thai Packaging Centre. There is also Coca-Cola Thailand, a private company that supports budgets for collaboration. Moreover, the BMA selected some district offices to become pilot district offices on waste separation to get usable waste for utilisations. This project was named Recycle 360°. During that time, all collaborative organisations had seen that most waste was collected by the BMA. All of the waste was disposed of in landfill sites and was utilised at their sources in a very small amount. People who used this waste for benefits were ‘sa-leng’ (mobile shops who buy and sell recyclable materials) and the BMA’s waste collection officers. Waste separation was done only at sa-leng and the BMA’s garbage trucks.

Therefore, the BMA collectively discussed with other collaborative organisations a waste separation project because the BMA had sent some staff on a site visit to study waste separation for utilisations in Tokyo, Japan. In Tokyo, they said that waste could be utilised for 100 per cent of the total waste. Recyclable waste such as glass, paper and plastics would be separated at source for utilisations. The LAO of Tokyo invited the private sector and communities to participate in this project. It also had a system for collecting recyclable waste for the utilisation. The rest of the waste would then be burnt for generating electricity. They had days and times for waste collection instead of collecting waste every day. This project was based on the concept of CBM (community-based solid waste management).

The BMA thought that it was a good project, so they adopted it and applied it to the context of Bangkok. This was the reason the BMA initiated the new waste management project with Coca-Cola Thailand in 2013. It was the most outstanding project which the BMA collaborated with the private sector. Coca-Cola Thailand had supported the BMA continuously. The first phase was implemented in 2013-2014 and the second phase in 2015-2016. There was a sub-district office of the Chatuchack District Office as a pilot organisation of this project, using the principle of encouraging local people to separate their waste at source. The BMA encouraged communities, schools, markets, high-rise buildings and shopping malls to separate waste at source. After that, the BMA proposed the idea to other collaborative organisations in a collective discussion that collaboration should not just deal with recyclable waste. Instead, other waste, for instance food waste, should be separated at source for utilisation as well. In other words, recyclable waste would be sold for recycling while food waste would be made into organic fertilizers and bio-fermented water by communities to be used in their households (Interview with a BMA official, 23/05/2017).

Bio-fermented water can be used for benefits in four areas: agriculture (adjusting the pH condition of soil, enhancing the growth rate of plants and controlling pests); livestock farming (reducing the smell of animal droppings, reducing microorganisms and diseases and increasing animal appetites); fishery (adjusting the pH condition of water, degrading dirt in water and healing the wounds of aquatic animals); and the environment (reducing the smell of wastewater and degrading waste) (Puechkaset.com, 2018).

The BMA itself was a key factor that stimulated the creation of a waste management collaboration of the BMA. The BMA has had a policy on waste management since 2005. It was the policy of the Governor of Bangkok at that time, Mr. Apirak Kosayodhin. This policy aimed to reduce by 10 per cent the amount of waste generated annually in the BMA. The person who created the waste management policy was a Governor of Bangkok. The Governor had a meeting with related executive staff of the BMA, such as the BMA Director of the Department of Environment, to discuss the possibility of implementing the policy since the waste of the BMA needed to be managed from its source.

The BMA Department of Environment was the central organisation that transformed the BMA's policy into reality by creating projects from the Governor of Bangkok's policy. After that, these projects were assigned to district offices of the BMA; for instance, encouraging local people to separate waste at source, assigning pilot communities to separate waste at source, promoting recyclable material markets, encouraging local people to sell their

recyclable waste to the private sector and encouraging local people to process their food waste into bio-fermented water.

The BMA also allocated its budget (approximately 50,000 baht) for all sectors participated in these projects. In 2011, there was a flood in the BMA area. This made the previous waste management system fail because the BMA needed to clear waste from the flood areas. This made the amount of existing waste increase drastically in 2012 to 9,700 metric tonnes which equalled the amount of waste in 2004 before implementing the waste management collaboration. Therefore, the BMA got to reset these projects back to zero. Until 2013, BMA initiated a new waste management policy. The new policy was aimed at encouraging people to separate waste at source, which was based on the concept of CBM (community-based solid waste management) from Japan as mentioned earlier (Interview with a BMA official, 23/05/2017).

Additionally, the BMA's policies on waste management were included in the 'Bangkok-City of Security' policy in the 20-Year Bangkok Development Plan (2013-2032). This waste management policy was based on the zero-waste philosophy, which was that waste would be processed according to the 3Rs principle: reduce, reuse and recycle (Department of Environment, 2013, p. 2, p. 96), and was specified in the BMA's five-year Waste Management Plan (2015-2019). This plan was based on the idea that waste was a resource, so the BMA supported the utilisation of waste by the participation of all sectors (Department of Environment, 2015, p. 6). Moreover, this plan had two clear objectives to support the creation of collaboration between the BMA and other sectors. First, local citizens would

share responsibility for solving waste management issues with the government sector. In other words, local citizens would change from being service receivers to partial service providers. Second, all sectors would participate in waste management in the BMA (Department of Environment, 2015, p. 17).

It can be concluded that the first period of the creation of the waste management collaboration of the BMA was done by the BMA, the Thai Packaging Centre and three universities with the participation of shopping malls. The concrete evidence of a waste management collaboration project was the installation of drop-off points for waste separation in shopping malls. The second period of collaboration the BMA's waste management was very different from the first period. In this period, a private company came to give budgets for a collaborative project.

Moreover, the BMA learned about a collaboration for waste separation from a foreign country and applied their concept to create a model for a waste management collaboration project in the BMA area. Communities became the major actors in the collaboration. In addition, other organisations related to communities such as local schools, markets and high-rise buildings were encouraged to participate in the project. Additionally, district offices which are part of the BMA government, were intermediary organisations who help the BMA collaborate with local communities.

6.4 Development of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA): From Past to Present

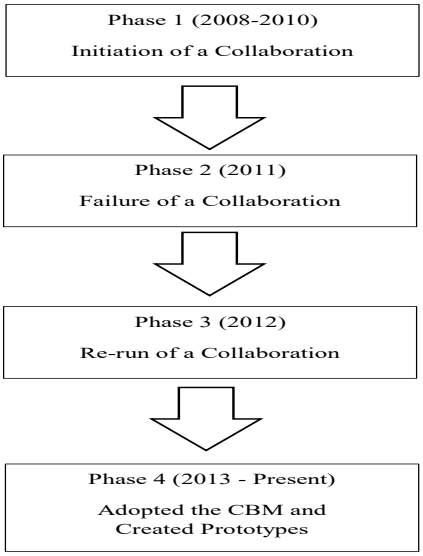
According to an interview with a BMA official, the development of a collaboration for waste management of the BMA can be summarised in three phases, as presented in figure 6.1. The first phase (2008-2010) was the initiation of a waste management collaboration by promoting a waste separation project with the participation of four sectors consisting of the BMA, a state enterprise, academic institution and shopping malls. The second phase (2011) was the phase of the failure of the waste management collaboration because of a flood. The third phase (2012) was a re-run of the waste management collaboration after the flood. However, the project was not effective in this phase, and the final phase (2013–the present time) was the phase that adopted the concept of CBM from Japan, and applied it to the context of the BMA, creating 12 pilot communities using the CBM principle.

This project has been implemented continuously until the present time. Since many people who live in the BMA are from other provinces the BMA wanted people in other provinces to participate in waste separation too. Fortunately, the Ministry of Internal Affairs adopted this idea and created a policy for every province encouraging people to separate waste at source; this is known as the 'zero-waste Thailand' policy (Interview with a BMA official, 23/05/2017). An interview with a community leader in a participating community found that local people knew what was required in relation to waste preparation and were actively involved in collaborative projects:

> "Our villagers have had knowledge in waste separation, participated in collaborative projects, and collaboratively proposed their plans or suggestions for the projects. It

could be clearly seen that villagers in this community are more disciplined in managing waste that they generated. The number of villagers who participate in the collaboration increases continuously because this community uses democratic ways to gain their participations, and to listen to their suggestions. They have a sense of belonging with collaborative projects because these projects have been adjusted to meet their needs and have been run by them." (Interview with a community leader, 25/05/2017).

Figure 6.1: Development of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA): From Past to Present



6.5 Other Collaborative Organisations

As mentioned earlier, collaboration for waste management of the BMA was divided into two periods. In the first period (2008 - 2012), the BMA collaborated with the following key organisations: the Thai Packaging Centre; three universities (Kasetsart, Chulalongkorn and Mahidol); and shopping malls in the BMA area. In the second period (2013 - the present time), the BMA collaborated with Coca-Cola Thailand, the BMA district offices and communities, with the participation of other community organisations such as local schools and other academic institutes, markets, shopping malls, hotels, high-rise buildings and condominiums (Interview with a BMA official, 23/05/2017).

Moreover, most key collaborative organisations have participated in the waste management collaboration of the BMA since the beginning of the project in 2013. However, there were some organisations; for instance, one district office and one community, which claim that they have participated in a project since 2010 (Interview with a district official, 25/05/2017, Interview with a community leader, 25/05/2017). That was still in the first period of collaboration. This was possible because, according to a BMA official, the waste separation project which had been implemented since 2008 was still carrying on (Interview with a BMA official, 23/05/2017).

However, these collaborative organisations participated in waste management collaboration for different reasons. To begin with, district offices participated in collaboration due to the command of the BMA because they were under the administration of the BMA and worked

as intermediary organisations between the BMA and local communities. A district official talked about the experience of a district office at that time:

> "Department of Environment of the BMA sent a policy to a district office to select a community to implement a waste separation at source. Therefore, Chief of the Division of Cleanliness and Parks Maintenance of a district office selected the Sa-nguan Kham Community and the Chan Sab community as pilot communities for this policy because they were canal-side communities." (Interview with a district official, 25/05/2017)

In addition to this, a community leader of one of the communities selected to be pilot communities of the policy talked about the reasons for participating in the project:

> "The community-based waste separation project was presented by a district office. After that, a community committee had a meeting about adopting this project and opened our community's public hearing to inform our local people that our community planned to receive this project and asked them whether they would accept this decision or not. The result was our local people agreed to do so. Therefore, our community has participated in the project since 2010 until the present time." (Interview with a community leader, 25/05/2017)

Apart from the district offices that participated in the waste management collaboration, following orders of the BMA, other collaborative organisations were not forced to participate in the collaboration. They voluntarily participated for their own reasons; for instance, a democratic agreement of local people, or a policy to create a good relationship

with local communities. Moreover, there were other organisations related to pilot communities; for instance, a private company which was not Coca-Cola Thailand, participated in this waste management collaboration. A representative of this private company stated the reason why the company participated in the project was that it was compatible with an objective of the organisation to make staff more socially responsible. The organisation informed staff about this objective at the orientation session for new staff. Furthermore, it was compatible with the SRM policy (supplier relationship management) of the company. This policy was about taking part in activities to spend non-monetary resources, belonging to the organisation, in order to do something beneficial for society (Interview with a representative of a private company, 27/07/2017).

6.6 Management of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA)

The scope of management of a collaboration for waste management of BMA covered the process of waste separation at source until waste utilisation. The waste that could not be utilised would be disposed of. Eighty per cent of this waste would be disposed of in landfill and the rest would be burnt in the BMA's waste burning ovens. Furthermore, the BMA relied on voluntary compliance due to an absence of formal sanctions:

> "BMA does not have any systems to force people to implement projects neither by legal forces nor social sanctions. We just encourage the local people. There is still no law to enforce. There is just a plan – the plan that has encouraged people to set up hazardous waste separation points and electronic waste collection points in their communities in all districts of Bangkok. We have informed them about these

projects, about concrete benefits that they can touch. As a result, the tendency of the collaboration is better and better because people voluntarily agree to participate in the projects." (Interview with a BMA official, 23/05/2017).

The management structure was comprised of three parts: a policymaking organisation; intermediary organisations; and policy implementation organisations, as presented in Figure 6.2. The policymaking organisation of the BMA waste management collaboration is the BMA itself. The BMA created a CBM-based policy for waste separation. After this policy had been approved, the governor of Bangkok would command the Department of Environment to command intermediary organisations to select communities to implement this policy. Next, district offices acting as intermediary organisations, located in all 50 districts of the BMA, would receive instructions from the BMA Department of Environment then selected communities in their areas, made them understand a policy, and encouraged them to implement a waste management collaboration policy (Interview with a BMA official, 23/05/2017).

Within these intermediary organisations, there were intermediary staff. These were staff from district offices who were assigned to enter the community and work with local people in the waste management collaboration. It could be said that this staff was an intermediary between the waste management collaboration policy and the implementation of the policy. They comprised a governor of the district office, community development staff, environment maintenance staff and cleanliness and parks maintenance staff. However, in practice not all of these assigned staff members could enter the community as often as

desired because they had other responsibilities. Apart from working with a community, intermediary staff also performed other roles.

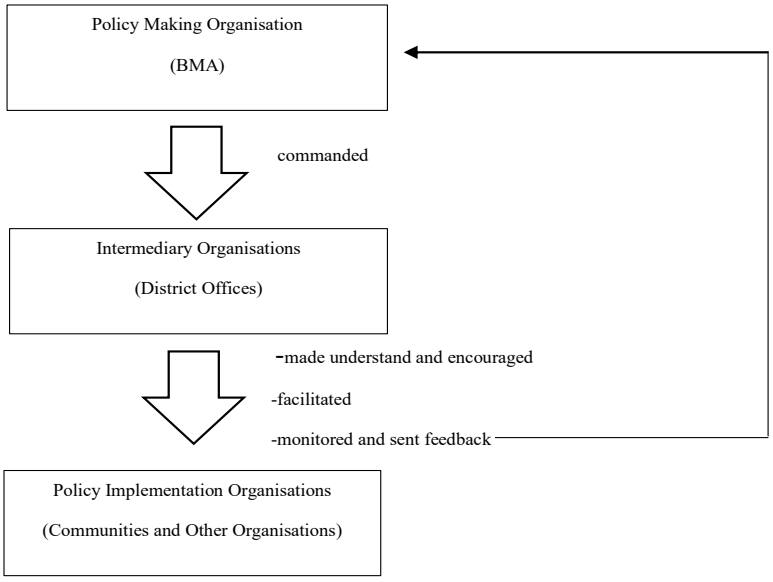
First, they adjusted a model of work which had been adopted from the BMA because the model that worked in one community may not work in another community. Moreover, they encouraged other organisations to participate in the collaboration, as one district official explained:

> "Our district office uses democratic ways to encourage other organisations to participate in the projects. We do not apply the old paradigm to force them to do anything without their willingness to do. For example, we have tried to encourage private organisations that have to do their CSR activities already to participate in our community's waste management projects. The participated organisations have agreed to participate in the projects because we have the same purpose in making communities in our areas better, and they have clearly showed their efforts to be 'community-friendly organisations' already." (Interview with a district official, 25/05/2017).

The last parts of the management structure were policy implementation organisations. These organisations were communities within districts of the BMA that agreed to participate in the waste management collaboration. After the communities agreed to participate, the district offices would facilitate the communities in working for the collaboration. Furthermore, district offices also monitored this project and sent feedback to the BMA to evaluate the policy implementation. The communities would separate their waste at source and utilise

the waste as much as they could. Moreover, there were other policy implementation organisations which were the organisations that voluntarily did the waste separation at source and utilised that waste in collaboration with those communities; for instance, private companies, local schools and shopping malls (Interview with a BMA official, 23/05/2017).

Figure 6.2: Structure of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA)



There were two forms of working agreement for the BMA waste management collaboration, consisting of command and MOU (memorandum of understanding). Command was a working agreement between the BMA and the district offices. In general, a command was made in the form of an official announcement to inform a district office of the tasks that were required by the BMA to be carried out. MOU was a working agreement that the BMA

made with other collaborative organisations that were not district offices. For example, a BMA official stated that the "BMA did MOU with the Coca-Cola Thailand and the Thai Packaging Centre about assigned works of each collaborative organisations and budgets to support those works" (Interview with a BMA official, 23/05/2017).

Each collaborative organisation played a different role in the collaboration based on the structure of the collaboration. According to an interview with a BMA official, the BMA, the Thai Packaging Centre, and Chulalongkorn, Kasetsart and Mahidol universities played a role in creating a waste management collaboration policy for the BMA. In addition, Coca-Cola Thailand provided a budget to support the implementation of that policy. Moreover, district office staff would receive training and have site visits about waste separation in order to form a team to educate local people in the communities and encourage the communities to participate in the waste management collaboration (Interview with a BMA official, 23/05/2017).

With regard to the communities, they had to make a decision about whether to participate in the collaboration or not. If they agreed to participate, they would apply the policy of the collaboration as appropriate for the context of their communities. For example, a leader of a community that participated in the waste management collaboration talked about their activities when participating in the collaboration:

> "Our community started to do waste separation systematically. We had set 4 types of waste: (1) general waste, (2) recyclable waste, (3) hazardous waste and (4) wet waste. After we had implemented this policy, the amount of waste dumped into a

> public area decreased. When the amount of waste decreased, our community did a public hearing about waste refusal days. As a result, our community had set Sunday, Tuesday and Thursday (from 4 pm to 5 am) as waste refusal days of the community substituted for refusing waste every day." (Interview with a community leader, 25/05/2017)

After a community had separated their waste at source, the waste would be disposed of in two ways. The first way was disposal by the BMA. Local people in a community did not have to transport waste, they just needed to drop their waste at a BMA waste collection point. The BMA then sent garbage trucks to collect waste from those collection points in communities. The garbage trucks would transport waste to the BMA's transfer plants in Onnuch, Saimai and Nongkheam districts.

Because the BMA did not have any more landfill sites, the BMA then hired private sector companies to deposit this waste at private landfill sites in Nakorn Pathom and Chacherngsao provinces. Private organisations who had their own landfill sites had come to the BMA to bid for a contract with the BMA for waste disposal by landfill. Their landfill sites and wastewater treatment systems needed to pass the standard test, ISO 14,000 (Interview with a BMA official, 23/05/2017). Another way was letting a community utilise those waste. For example, in the case of the Sa-nguankum community, recyclable waste would be sold to a community's waste bank. When the amount of waste in the waste bank was high enough, the community committee would sell it to a private company, which would then send their staff to collect it from the community.

Income from selling recyclable waste would be spent on community activities such as the Thai Children's Day, Thai Mother's Day, Thai Father's Day and Sonkran Festival activities, and giving scholarships to students in a community. Additionally, wet waste would be processed into bio-fermented water. A small amount of this waste would be processed to feed Asian water monitors in the canal. For hazardous waste, there was a project named 'hazardous waste for eggs' where, every two months, local people in the community could exchange their hazardous waste; for instance, spray cans, flashlight batteries and other batteries, for eggs from the community committee (Interview with a community leader, 25/05/2017).

There were two forms of decision making in the BMA waste management collaboration. The first was top-down decision making. First of all, a decision was made by the Governor of the BMA then the issues from the governor's decision would be sent to the Department of Environment to make a decision. After that, the issues from the department's decision would be sent to either the Sub-Department of Waste and Hazardous Management and/or the Sub-Department of Waste Disposal Plants of the BMA, the governor of a district office or the chief of the Division of Cleanliness and Parks Maintenance of a district office and a participating community. The second form was decision making by a joint committee. The BMA set up a joint committee for collaborating with other organisations for waste management. This committee comprised representatives from the Sub-Department of Policies and Plans and Sub-Department of Waste and Hazardous Waste Management of the BMA, and representatives from other collaborative organisations. This joint committee was headed by a president. Before implementing any projects, the joint committee would have a meeting to make collective understanding and assign works. In general, the representative

of the Sub-Department of Plan and Policies would be a secretary of a joint committee in order to drive the implementation of a project by approaching communities, training and monitoring a project (Interview with a BMA official, 23/05/2017)

At a community level, there were general committees, not a specific team for waste management. However, these committees had responsibility for decisions on waste management (Interview with a district official, 25/05/2017). It consisted of eight members who were volunteers from the community and who were approved by the district office in which the community was located. The community committee and local citizen volunteers drove the waste management collaboration project. However, they wanted local citizens to run the project themselves with the community committee as a coordinator (Interview with a community leader, 25/05/2017). The BMA planned to visit all participating communities at least once a year. Furthermore, the BMA bought materials for producing bio-fermented water and containers for fermenting fertilisers, and then distributed these items to participating communities through district offices (Interview with a BMA official, 23/05/2017).

6.7 Collaborative Capacities of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA)

There were nine types of collaborative capacities of a collaboration for waste management of the BMA identified in my case study research, as presented in Table 6.2. The first capacity was the financial capacity. According to a BMA official, there were three major organisations that gave budgets of a collaboration for waste management of the BMA.

Firstly, the waste management collaboration used the BMA's budget as its major source of income; for instance, budgets for the provision of garbage trucks and their fuel, waste burning ovens and landfill provision.

Waste collection fees were collected by district offices, who then sent the money to the BMA. The BMA would allocate the money back to district offices. The BMA allocated more money to district offices than they collected. For example, the BMA received approximately 500 million baht (11,190,488 GBP) per year from district offices but it paid approximately 6,000 million baht (134,305,020 GBP) per year to district offices. A community leader stated that a community needed to present its activity plans to the district office in order to receive money from the district office, approximately 5,000 baht (112 GBP) per month (Interview with a community leader, 25/05/2017).

The second organisation that provided money for the BMA waste management collaboration was Coca-Cola Thailand, which gave 20 million baht (approximately 447,683 GBP). The last financial supporter was Fukuoka City, which offered scholarships covering all payments (e.g. air tickets, food, accommodation) for BMA staff to learn about waste management in Fukuoka City, Japan. Fukuoka was a leader in waste separation, so it wanted to be a major city in promoting this concept to other cities. Moreover, Japan is a developed country that aims to help developing countries. They also thought about the benefits of good environment management because the environment in every area in the world is linked together (Interview with a BMA official, 23/05/2017). Other collaborative organisations were involved; for instance, a private company informed that the company gave money to the

volunteers and other people who came to work together in waste management collaboration to buy food and drinks, or necessary equipment (Interview with a representative of a private company, 27/07/2017).

In terms of staff capacity, the BMA had developed the capacity of its staff at every level by providing waste management workshops and site visits both within the country and to foreign countries. However, there was not enough staff in some departments and there was a scarcity of specialists in waste management due to the problem of paying for these specialists (Department of Environment, 2015, p. 14). Moreover, a BMA official stated that the "BMA supported new generation staff to learn and absorb knowledge about waste management as much as possible, and old generation staff could learn from reports of those new generation staff" (Interview with a BMA official, 23/05/2017).

Furthermore, if more specific knowledge was required, the BMA would hire external experts to work for the waste management collaboration. For example, a BMA official said that the "BMA hired experts from academic institutes such as Mahidol University, NIDA (National Institute of Development Administration) and Kasetsart University to be the consultants of a canal-side prototype project of a waste management collaboration." Furthermore, the BMA organised intensive training, lasting four to five days, for district office staff about how to encourage local people to separate their waste, how to approach local communities, how to do waste separation properly and how to utilise waste (Interview with a BMA official, 23/05/2017).

BMA had the first staff training in 2007 with 60 participants. After that, the BMA trained more than 60 participants annually. By 2011, the BMA had trained 360 participants. They were civil servants who were working in district offices of the Division of Cleanliness Maintenance such as waste collection officers, community development officers (to approach communities) and sanitation technical officers (to approach establishments). After 2012, these participants operated their works by defining indicators and creating prototypes of their areas (Interview with a BMA official, 23/05/2017).

It can be inferred that BMA staff who worked in the waste management collaboration were well-trained. Another point was that these staff worked with communities as extra work, additionally to their normal duties. It was argued that this extra work could impact the core work. They therefore needed good time management because they generally needed to do their core work effectively before heading to do their extra work (Interview with a district official, 25/05/2017).

The staff of other collaborative organisations also worked extra hours for the collaboration. For example, a representative of a private company stated that the organisation asked staff to volunteer to work in the waste management collaboration project when they were free from their other duties; for instance, after the office hours. As a result, 100 - 200 staff always volunteered to work for that project. He also stated:

> "The major difficulty that we experienced was how to encourage our staff to participate in the project because we spent the time during weekends to implement activities of the project. The staff could be tired from these activities and they were

not paid by our company to do." (Interview with a representative of a private company, 27/07/2017).

However, the company was successful in encouraging staff because the company addressed their perceptions and the executives of the company also took part in the project:

> "We tried to make our staff have the perception that waste management problems were related to all of us, and we should resolve these problems for the benefits of the whole society. Our company has a clear objective to make our staff be responsible for benefits of the society. We have told them about this objective since the orientation of new staff regularly. The executives of our company also have participated in activities of the collaboration with staff. We always have worked together." (Interview with a representative of a private company, 27/07/2017).

The third capacity was knowledge. Apart from BMA staff's knowledge of waste management, there was also knowledge from other collaborative staff; for instance, a private company. For instance, a representative of a private company that participated in the BMA waste management collaboration said about his company's knowledge that, "we supported the project in the form of personnel, and knowledge on waste separation because we had had this knowledge from the experience of the implementation of ISO (International Organization for Standardization) 14,000 standard. We brought our knowledge to educate the community" (Interview with a representative of a private company, 27/07/2017).

The information-sharing capacity was the fourth collaborative capacity that was mentioned by the interviewees. It was said that the BMA always published information about all of its projects on the website in order to inform the public. This meant that the BMA had the capacity to share information about its waste management collaboration with the public as well. However, in order to share information with other collaborative organisations, the BMA frequently chose to have meetings with other organisations (Interview with a BMA official, 23/05/2017).

The fifth capacity mentioned in interviews was emergency management. When there was an emergency case that could impact waste management collaboration, such as a flood, a joint committee would have a meeting to discuss solutions. In addition to this, BMA had the capacity to deal with possible emergencies based on past experiences. For example, a BMA official stated that the "BMA had a lesson about waste management collaboration learned from the flood that emerged in the past. Thus, when it was flooding, we would ask local people to do not dump their waste on the public roads encouraging them to keep their waste at home until the flood had gone. In the case of their food waste, we would encourage them to process food waste into bio-fermented water." Furthermore, BMA had staff who had knowledge about dealing with emergencies, for example the head of each unit of the organisation (Interview with a BMA official, 23/05/2017).

The innovation capacity was also discussed. The BMA always provided opportunities to think together and talk together for proposing new ideas for waste management collaboration (Interview with a BMA official, 23/05/2017). Moreover, some of the other collaborative

organisations also had the capacity to be innovative. For example, a representative of a private company that participated in the BMA waste management collaboration stated that, "our organisation encouraged staff to talk when they wanted to talk, not because the organisation wanted them to present their ideas. It was because our organisation wanted them to present what they really need to see in the future. This might make the project more successful" (Interview with a representative of a private company, 27/07/2017).

The sixth capacity was the boundary-spanning capacity. This was about encouraging other people or organisations to collaborate with our organisation. For example, the following quote from a district official reflected the capacity to encourage people to participate in the collaboration:

> "We did some tactics to make local people realise their waste management problems that need to be resolved by a collaboration with the BMA through a district office. That was a district official went to inform local people in a public hearing speaking with them directly because local people would not understand the too complicated messages. Making local people realised that they were the key actor to solve waste management problems in their areas since the district officials could help by just collecting waste, and the district officials could not collect waste for them every day. If they wanted to solve their waste management problems sustainably, they needed to do by themselves." (Interview with a district official, 25/05/2017).

In addition to this, the BMA created public awareness to encourage people to participate in the collaboration. Overall, the BMA created public awareness of the importance of

participating in waste management collaboration through the media such as radio, television, billboards and pamphlets, which all promoted waste management collaboration projects (Interview with a BMA official, 23/05/2017). Intermediary staff from district offices made local people aware that waste management problems were their own problems, and they were the people who caused those problems. Therefore, they needed to understand that they were in the best position to solve those problems. Moreover, children within local communities were informed about a collaboration for waste management as well.

A district official stated:

> "We did everything to make children in the community realise an importance of waste management collaboration, instead of pushed them to do. For instance, we had a waste management quote competition for students. They might need to think of the quote for a couple of days or more, so they would immerse themselves in the idea about waste management collaboration automatically." (Interview with a district official, 25/05/2017)

The last level was dealing with staff from other collaborative organisations. A representative of a private company that participated in the BMA for waste management collaboration said that the project dealt with waste that people would consider disgusting, and that it was a difficult task. The staff would be tired, and the organisation did not pay them for joining this project. It was about how to change perceptions of the staff towards waste management problems and to make them want to deal with these problems for the benefit of society as a whole because in the past, most staff believed that solving waste management problems was the duty of a LAO (Interview with a representative of a private company, 27/07/2017).

Furthermore, the capacity to provide equipment for the collaboration was mentioned as well. It was said that the BMA offered collaborative organisations the necessary equipment for waste management collaboration. For example, a community leader of a community that collaborated with the BMA for waste management stated that, “our communities had always received vehicles, garbage bins, waste fermentation bins, and fermentation substance and staff from a district office” (Interview with a community leader, 25/05/2017).

The last collaborative capacity the interviewees mentioned was communication. The BMA already had a free hotline service for local people. They could use this to communicate with the BMA about the waste management collaboration. Moreover, intermediary staff from district offices always opened opportunities for communities to recommend their ideas (Interview with a BMA official, 23/05/2017). This point was supported by an intermediary member of staff that people in a community knew intermediary staff, and they would tell the staff when they had any problems with the waste management project. Sometimes they would tell the community leader or the community committee. The community leader or committee would then inform intermediary staff. Moreover, sometimes intermediary staff participated in committee meetings, if that meeting was related to issues about waste management, to give information or to listen to problems and comments from the community.

> “We tried to integrate the works of our district office with the community’s activities. We would not dominate their activities if we did not have urgent issues that were

related to the community. Normally, we talked about our issues a bit so that it would not bother the community's time." (Interview with a district official, 25/05/2017).

The community had monthly formal meetings with related district office staff, such as a district governor or chiefs of related divisions of the district office, and that they sometimes sent requests to the district office about problems in the community. After that, the district office would send related staff to the community to sort those problems out together. The formal meeting and the request making were ways for the community and district office to communicate with each other. In addition, the community had informal meetings with intermediary staff from the district office regularly (Interview with a community leader, 25/05/2017).

Table 6.2: Summary of Collaborative Capacities for Waste Management in the Bangkok Metropolitan Administration (BMA)

Number	Type of collaborative capacities	Examples of activities
1.	Financial	There were three major organisations that gave budgets to the BMA's waste management collaboration.
2.	Staff	BMA staff attended workshops and site visits related to waste management within Thailand and other countries.
3.	Knowledge	The BMA gained knowledge from their collaborative organisations.

4.	Information sharing	The BMA frequently published information about their projects on their website.
5.	Emergency management	When there was an emergency, a joint committee would organise a meeting to discuss solutions.
6.	Innovation	The BMA always provided opportunities to think together and talk together for proposing new ideas for waste management collaboration.
7.	Boundary spanning	District officials encouraged people to participate in their projects.
8.	Equipment	The BMA provided adequate equipment for a collaboration.
9.	Communication	The BMA had several channels to communicate with their collaborative organisations.

6.8 Problem Solving as an Outcome of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA)

At present, the BMA has around 1,000 prototype communities out of more than 10,000 communities (Interview with a BMA official, 23/05/2017). Moreover, according to data from the BMA Department of Environment, waste management collaboration could reduce 41 per cent of the total amount of the BMA's waste. Eventually, it reduced 17,898 metric tonnes of carbon dioxide gas due to the reduction of waste and recyclable materials, reduced 11.4 million baht of the cost of the BMA's waste management, and earned over 6.6 million baht of the citizens' incomes from the sales of recyclable materials.

Additionally, the data showed that 80 per cent of people participating in collaborative waste management were satisfied with it, and 92 per cent had better knowledge of waste separation at source. In addition, this project increased public awareness of collaborative waste management, and it made people more likely to take part in collaborative waste management projects (Department of Environment, 2014, pp. 99-100). Furthermore, levels of poisonous gasses, such as methane and carbon dioxide, were reduced. Finally, and most importantly, this collaboration turned waste into resources to be utilised again (Interview with a BMA official, 23/05/2017).

6.9 Working Relationship as an Outcome of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA)

There were two types of working relationships between collaborative organisations and the BMA. The first type was a formal working relationship. It was formal but not compulsory. The BMA was the main organisation taking action, using trained staff and sending them into communities, academic institutions, business establishments and shopping malls. The BMA also communicated with other collaborative organisations but did not force them to implement waste management collaboration projects. The other collaborative organisations voluntarily implemented their collaborative tasks (Interview with a BMA official, 23/05/2017). Furthermore, participating communities perceived their working relationship with the BMA as very formal because communities needed to present project proposals or draft official letters to be able to work with the BMA (Interview with a community leader, 25/05/2017).

The second type was the informal working relationship. This could be clearly seen in a working relationship between community leaders and intermediary staff from district offices who worked with the community. They could make calls to each other whenever they needed something from each other (Interview with a community leader, 25/05/2017).

Additionally, informal working relationships emerged between other collaborative organisations. For example, private companies had informal relationships with both communities and district offices. A representative of a private organisation that collaborated with the BMA stated that, "we could say that we had a good relationship with a community, not a formal or distant relationship. We had good attitudes with each other. The evidence was that, when our organisation surveyed opinions of people in the community, the result showed that people in the community could recognise our organisation and had good attitudes with us."

He also said that, "After worked with a district office in a waste management collaboration continuously, a district office asked our organisation to help whenever they had any new projects, and our organisation was happy to support them. Similarly, we were always willing to support other projects of the community" (Interview with a representative of a private company, 27/07/2017). It could be assumed that collaborative organisations that had worked together continuously had a good and informal working relationship. They could require participation from each other whenever they wanted.

6.10 Other Benefits of Collaboration for Waste Management in the Bangkok Metropolitan Administration (BMA)

There were five major benefits from the BMA waste management collaboration which were mentioned by representatives of the BMA and other collaborative organisations. The first benefit was the creation of models for best practice of waste management collaboration. These models could be an inspiration and examples for other communities. For example, other provinces visited the models such as Sa-ngan Khum and Kade Phairor communities through the management of district offices. Other countries also came to learn from these models; for instance, Bhutan and Japan. The Kade Phairor community utilised 90 per cent of their waste; for instance, all of their food waste was processed into fertilisers and bio-fermented water. This could impress representatives of other countries who visited them (Interview with a BMA official, 23/05/2017).

There were other beneficial lessons learned from the waste management collaboration; for instance, how to deal with emergency situations. Furthermore, the collaborative organisations became more aware of waste management problems. As a result, these organisations could be good partners for the BMA in implementing further waste management activities. Moreover, lessons learned from this waste management collaboration project have been published as a community waste management manual in the form of a compact disc. This manual has been sent to 2,000 BMA community leaders, BMA schools and BMA district offices (Interview with a BMA official, 23/05/2017).

Apart from the direct benefits of waste management collaboration, there was an indirect benefit mentioned by a representative of a private organisation that collaborated with the

BMA for waste management. This was creating a positive public image of an organisation. He stated that, "participating in a waste management collaboration made the image of our organisation as an organisation which gave importance to public interests. We would like people to recognise our organisation as an organisation which was responsible for interests of the society" (Interview with a representative of a private company, 27/07/2017)

Moreover, the emergence of a strong community was another major benefit of the waste management collaboration. A strong community was a community that learned from then collaboration and then became a community with a high level of public participation. For example, in some areas only district officials came to participate in a 'Big Cleaning Day' project but a strong community was completely different. The 'Big Cleaning Day' for them was a community-led project with the participation of the district office, which provided resources that the community did not have; for instance, cleaning equipment or mechanics. This is what I called a 'strong community.' A district office was not required to do many things, perhaps just to be a mentor. Furthermore, since the public participation rate was high in every project, other organisations wanted a strong community to participate in their projects as well. For example, when a police station wanted to do a 'White house' project, they invited a community to participate in their project (Interview with a district official, 25/05/2017). This extended the extent of collaboration in the local government of Thailand.

The last benefit derived from waste management collaboration was the emergence of closeness between collaborative organisations, for example, between a community and intermediary staff. This closeness could consequently generate trust between them. This

meant a community would feel able to communicate any problem which they believed intermediary staff could help them to resolve. In other words, a district official would be the first person that a community would think of whenever they had a problem. Additionally, there was closeness between a community and other collaborative organisations. This closeness could lead to the creation of networks for other issues. Thus, when a district office brought a new project to a community, a community and other members of this network would participate actively in that project (Interview with a district official, 25/05/2017).

6.11 Future Tendency and Recommendations for Making Collaboration for Waste Management More Effective

6.11.1 Future tendency

The BMA's waste management collaboration is seen as having an influence on the zero-waste Thailand policy, as a prototype for implementing waste management collaboration in all LAOs in Thailand and encouraging those LAOs to create a waste management collaboration. These roles of the BMA are likely to continue in the future. The BMA is planning community-based hazardous waste management collaboration encouraging people to set up hazardous waste separation points in communities and electronic waste collection points in districts (Interview with a BMA official, 23/05/2017).

Turning to district offices, they expect to extend the implementation of waste management collaboration to cover other communities by making them see the benefits that the prototype community has received; for instance, changing from a dirty and smelly community to a

clean community. However, the goal to be zero waste is impossible because there will always be some waste that cannot be disposed of. Thus, the only possible option is to reduce waste as much as possible. They also want communities to learn from other successful communities. For example, universities in Beijing visited the 'Kong Kaya Sai 3' community to learn about waste management from this community. This community is successful in waste separation for sale when the Sa-nguamkum Community is professional in waste separation at source. They will be mentors for other communities that only participate in waste management collaboration. When those communities can work alone, a district office might help them in operating other tasks (Interview with a district official, 25/05/2017).

Furthermore, other collaborative organisations expect to accomplish their goals in the future. For example, a community leader of a community participated in a waste management collaboration of the BMA expects that most local communities will become zero-waste communities. Moreover, she expects that, with or without community committees or leaders, the communities will be able to carry on a waste management collaboration's projects (Interview with a community leader, 25/05/2017).

Finally, private companies will continue participating in this waste management collaboration in future due to the positive impact that it has on the organisation's public image, as he stated:

> "We will continue working for the collaboration because its activities promote the good image of our organisation in terms of, we really did beneficial things to the society." (Interview with a representative of a private company, 27/07/2017)

This organisation also expects to resolve waste management problems then prevent the emergence of the same problems again and create awareness to prevent these problems as a perfect cycle of waste management (Interview with a representative of a private company, 27/07/2017).

6.11.2 Recommendations

The interviews identified a number of recommendations, from collaborative organisations, for making waste management collaboration more effective. The first recommendation was having additional staff. Additional staff could help the collaboration for waste management more effective, but this staff must be qualified for a collaboration. For example, a representative of a private organisation that collaborated with the BMA waste management project stated that, "Additional staff was necessary but staff that we needed was staff who was qualified to work for a collaboration" (Interview with a representative of a private company, 27/07/2017) However, it was interesting that some collaborative organisations believed that additional staff could not make the collaboration more effective. For example, a community leader of a participating community thought that if there were additional staff from the BMA or other organisations, people in the community would not participate in the collaborative project because there were other staff to work for them. She stated that:

> "A project that was operated in a community should not be dependent on the district office or other organisations but should be responsible by people in the community." (Interview with a community leader, 25/05/2017).

The second recommendation was that there should be incentives for staff who work for the collaboration. A district official of the BMA raised an interesting point about the lack of incentives for participating in the BMA waste management:

> "Some people devoted themselves to their works in a collaborative project; for instance, make their responsible communities won the waste management awards in a national level but did not receive a job promotion. This could be one reason that made the district officials felt frustrated to work for a project. All people want to be successful in their works. Success in works make people would like to devote themselves to work; for instance, people at least want an increased salary." (Interview with a district official, 25/05/2017).

This meant that the lack of incentives, such as job promotion and increased salary, could discourage staff from working for a collaboration. Furthermore, she recommended the BMA to offer incentives to staff who deserved them because it might encourage them and other staff to devote themselves more to the works. She stated that:

> "I think this is very important because incentives would build staff' morale, make staff enthusiastic and create a competition for better work achievement among staff." (Interview with a district official, 25/05/2017).

A representative of a private company that participated in a collaboration also supported this point since he recommended that a collaborative organisation should have conversations and give compliments to those staff who volunteered to work for a collaboration (Interview with a representative of a private company, 27/07/2017).

It was mentioned that technology and equipment were just things to facilitate communication between collaborative organisations. For example, teleconferences could make communication happen at a distance and save time. However, the content of communication between collaborative organisations was more important in order to make all parties understand details of the conversation in the same way. Moreover, some technology, for instance e-mail, was still inefficient because, in the context of Thailand, people generally need face-to-face communication. If using e-mail, it had to be about issues that those organisations were interested in and were willing to talk about (Interview with a representative of a private company, 27/07/2017).

The fourth recommendation was about a making of participation from other organisations in a collaboration. A representative of a private company argued that the budget was necessary for a collaboration but still not the priority. The priority was the making of participations from related sectors (Interview with a representative of a private company, 27/07/2017). One prototype community used democratic ways, such as public hearings, to encourage local people in a community to participate in a collaboration, then let them decide whether to participate in a collaboration or not (Interview with a community leader, 25/05/2017).

Experts were recommended to be included in waste management collaboration. However, it depended on the level of expertise that was required. If it was expertise at the level that staff of the collaborative organisations had, hiring experts might not be necessary and could make the collaboration too complicated (Interview with a representative of a private company,

27/07/2017). A district official also commented that the BMA had never hired experts for waste management collaboration. BMA had only hired experts to do academic tasks such as researching and creating plans or strategies for a collaboration. She argued that sometimes the plans were not compatible with practice because those experts were scholars, not operational staff, and operational staff sometimes could not understand the plans because they were too academic. Therefore, she recommended that the BMA should have both academic and operational experts working together to achieve suitable and understandable plans for a collaboration (Interview with a district official, 25/05/2017).

The sixth recommendation was about communication between collaborative organisations. A BMA official commented that local people in a community preferred face-to-face communication. They wanted other collaborative organisations to come to talk with them rather than communicating through other means such as official letters (Interview with a BMA official, 23/05/2017). A district official also recommended that talking with a community should not be too complicated or too academic (Interview with a district official, 25/05/2017).

The next recommendation was that a strong community leader; for instance, community leaders of the Sa-nguankum and Kadephiror communities could help a waste management collaboration be successful (Interview with a BMA official, 23/05/2017, Interview with a district official, 25/05/2017). The eighth recommendation was proposed by a community leader. She recommended that knowledge was necessary for a waste management collaboration. Nevertheless, that knowledge needed to be up to date. She recommended that

collaborative organisations should update their knowledge by visiting successful waste management collaborations in other communities and then apply their lessons to the context of each community (Interview with a community leader, 25/05/2017).

The ninth recommendation was that trainers from foreign countries or trainers in Thailand, but on a larger scale than a community, were needed to give recommendations that can be applied to a community's context, to make changes and exchange experiences and ideas because they might have wider visions for a community (Interview with a community leader, 25/05/2017). It was also recommended that training was necessary for collaborative organisations because they would be educated about their tasks in waste management collaboration (Interview with a district official, 25/05/2017).

The eleventh recommendation was about model adjustment. The BMA followed the model of a CBM collaboration. This model was adopted from Japan. However, each area in the BMA had a different context so the waste management collaboration model needed to be adjusted before being implemented in communities. In some communities, the model needed a lot of adjustment. In some communities almost the whole structure had to be changed, and it did not work at all in others (Interview with a district official, 25/05/2017).

Recommendations were made about perception of collaborative organisations. A district official argued that waste management was a big problem. Local people had dumped their waste in water or other public spaces for a long time. If a LAO would like to make them change their behaviour, a LAO needed to change their perception. Moreover, there would

be no participation of communities if communities did not perceive the project in the same way as district officials did (Interview with a district official, 25/05/2017).

Another recommendation was about using psychological methods in the implementation of waste management collaboration. For example, in the case of the Sa-nguankum prototype community, one factor that made their waste management collaboration successful was that the community leader and committee were very professional. They knew how to use psychological methods. For example, they would make local people who were not participating in the collaboration feel alienated from others because this community had only around 200 households (around 800 people). They had methods of knowing what these households were not doing. They did not force these households to do anything but asked them whether they had any problems that made them unable to change their habits; for instance, whether they forgot waste the community's waste collection days. These were psychological methods (Interview with a district official, 25/05/2017).

The final recommendation was about researching. The BMA should research other successful communities. Moreover, the BMA should research their own problems with waste management collaboration. Finally, the BMA should identify suitable indicators to measure a successful prototype community based on results of the research (Interview with a district official, 25/05/2017).

Conclusion

In conclusion, the case study shows that the BMA waste management collaboration was created due to the increasing amount of waste, and the lack of public awareness on waste management problems in the population of the BMA. The effective results of this collaboration have had an impact on waste management collaboration policy making at a national level and it is a prototype of implementing waste management collaboration for other LAOs in the country. Factors that have led to an effective collaboration in the BMA are financial, staff, knowledge, information sharing, dealing with emergencies, innovation creation, social, equipment, public awareness creation and communication factors. However, additional staff, incentives, technology and equipment, public participation, experts, communication, strong community leaders, up to date knowledge, trainers, model adjustment, perception, psychological methods and research are areas for improvement in the collaboration. After the BMA waste management collaboration passed the stages of initiation, failure, re-run, and adoption of new concepts, the BMA and other collaborative organisations are likely to continue their participation in the collaboration to improve the collaboration to be more systematic and extend the collaboration to other issues.

CHAPTER 7

COLLABORATION FOR WASTE MANAGEMENT IN THE PHITSANULOK CITY MUNICIPALITY

Introduction

This chapter is about the waste management collaboration in the Phitsanulok City Municipality. To do this, the chapter draws on three research methods consisting of document study (books, governmental reports, research articles, and other official document), semi-structured interviews (four interviews with representatives of the Phitsanulok City Municipality, a community, a local school and a private company), and direct observation (a prototype community that has implemented waste management collaboration projects in the Phitsanulok City Municipality). Some of the interviews are cited in this chapter but others only provided background information. Phitsanulok City Municipality was selected for two reasons. First, it is a general LAO which is outstanding in waste management and collaborating with local citizens and other organisations or groups in their waste management, derived from the discussions with Thai experts in waste management and Thai local government. Second, it received the 2013 King Prajadhipok's Institute award for networking with the public sector, the private sector and civil society. Moreover, it is the first LAO prototype in Thailand to use Community-Based Solid Waste Management (CBM).

This chapter is divided into 10 sections as follows: an overview of the Phitsanulok City Municipality; the waste management problems in Phitsanulok City Municipality; the creation of a waste management collaboration for the Phitsanulok City Municipality; other collaborative organisations; the management of a waste management collaboration for the Phitsanulok City Municipality; collaborative capacities; problem solving as an outcome of the collaboration; working relationships as an outcome of the collaboration; other benefits of the collaboration; and recommendations for making waste management collaboration more effective.

7.1 An Overview of the Phitsanulok City Municipality

Phitsanulok City Municipality covers an area of 18.26 square kilometres (The Project for Promoting Sustainability in Future Cities of Thailand, 2015). The current population of the Phitsanulok City Municipality is 68,086 (Official Statistics Registration Systems, 2017). It generated 134.81 metric tonnes of waste per day in 2014, 133.95 metric tonnes of waste per day in 2015, and 132.99 metric tonnes of waste per day in 2016 (Department of Pollution Control, 2015; Department of Pollution Control, 2016; Department of Pollution Control, 2017). The administrative structure of the Phitsanulok City Municipality comprises two parts: the mayor and the municipal council. The mayor is the chief of the executive body of the city municipality and is directly elected by local citizens for a four-year term, but not more than two continuous terms.

The mayor can appoint the vice-mayors, selected from people who are not members of the municipal council. The city municipality can have up to four vice mayors. Moreover, the

mayor can appoint the mayor's consultants and secretaries, selected from people who are not members of the municipal council, up to five people in total. The mayor's main duties are formulating municipal policies, commanding, permitting and approving works which are under municipal affairs, setting regulations for municipal works, keeping municipal works in accordance with municipal ordinances, proposing drafts of municipal ordinances, and being the chief commander of all municipal staff (Sala, 2013).

Second, there are 24 members of the municipal council and they are directly elected by local citizens for a four-year term. The city municipality's areas are divided into four electorates. Each electorate can have up to six members on the council. The council's members will select one of them to be the president, and another one of them to be the vice-president of the council. The president is the person who has the authority to administer the affairs of the council in accordance with the regulations of the meetings of the municipal council. The president also calls meetings of the municipal council and opens and closes those meetings. The main duties of the municipal council of the city municipality are approving drafts of general ordinances, annual budget ordinances and annual budget supplement ordinances, approving drafts of development strategies and three-year development plans of the municipality, and asking the mayor or the vice-mayor to have general discussions about the administration of the municipality (Sala, 2013).

There are seven main aspects of the relationship between the mayor and the municipal council. First, before the mayor comes into office, the president of the municipal council opens the municipal council meeting for the mayor to present his/her policies. Second, the

mayor, the vice-mayors and representatives of the mayor can attend the municipal council meetings, present facts and express opinions in those meetings. In case of an emergency, the mayor can approve a temporary municipal ordinance if a municipal council meeting is not able to be held on time.

Furthermore, the mayor will still be in office when the municipal council is dissolved. The municipal council has the authority to approve general ordinances, annual budget ordinances and annual budget supplement ordinances of the municipality proposed by the mayor. In municipal council meetings, members of the municipal council have the right to ask the mayor or vice-mayors about their activities. Nevertheless, the mayor and vice-mayors have the right not to answer those questions if they think that the information should not be disclosed. Finally, one out of three of the total members of the municipal council has the right to open a general discussion in a meeting of the municipal council to ask the mayor to present facts or give opinions about problems of the administration of the municipality. However, those members of the municipal council do not have the right to vote the mayor out of office (Sala, 2013).

In addition, there are three major groups of tasks of the municipality. The first group is the tasks which are needed for every organisation, such as documentation and buildings and maintenance. The next group is the tasks which are needed for governmental organisation, such as civil registration and identification cards. The final group is local service provision, such as waste collection and promotion of education (Sala, 2013).

Furthermore, the city municipality has other responsibilities under the Municipal Act, BE 2496 (1953) (Amendment of BE 2546 (2003)) such as the provision of public maternity and childcare, provision of public healthcare, maintenance of hygiene of restaurants, theatres and other entertainment spots, housing management and slum upgrading, provision and control of markets, wharves, fords and car parks, urban planning and construction management, and tourism promotion (Sala, 2013).

Although municipalities have been autonomous due to the centralisation, they still have legal relations with central government agencies; for instance, receiving specialist assistance from governmental organisations, especially from the Department of Local Administration of the Ministry of Interior, receiving budgets from the central government, and being representatives of the central government to operate some tasks especially governance and maintenance of public order (Sala, 2013).

Table 7.1: General Information about the Phitsanulok City Municipality

Number	Type of information	Details
1.	Size of area	18.26 km^2
2.	Size of population	68,086
3.	Waste generation rate of the last three years according to national records	134.81 tonnes per day in 2014 133.95 tonnes per day in 2015 132.99 tonnes per day in 2016

7.2 Waste Management Problems in the Phitsanulok City Municipality

The Phitsanulok City Municipality's waste management problems can be traced back to 1995–1997, the period when the municipality first used landfill sites. Firstly, the municipality disposed of waste at the Wang Tong landfill site. After the municipality had disposed of a lot of waste in this site, there was opposition from local people in that area. For example, the garbage trucks of the municipality that needed to enter the area were destroyed. There were problems due to flies and bad smells from the landfill site. Consequently, the municipality had to close it. However, the municipality understood that local people could not live with the bad conditions caused by the landfill site; for instance, they had to use a mosquito net to protect themselves from flies (Interview with a Phitsanulok City Municipality official, 03/07/2017).

In 1998 the municipality experienced problems due to rapidly increasing waste. The amount of waste generated by the municipality was 142 metric tonnes per day. This is a big increase when compared to the 49 metric tonnes per day in 1993. Furthermore, at that time, the municipality disposed of waste by burning it, which caused air pollution. Moreover, local people suffered from insects and bad smells from the piles of waste that were awaiting disposal. This made local people opposed to the waste management of the. For this reason, the municipality created a waste management project in 1998 that had three major strategies, consisting of encouraging public participation in waste management, improving the waste management systems of the municipality, and collaborating with nearby LAOs (Department of Environmental Quality Promotion (DEQP) in collaboration with Regional Environment Offices, Ministry of Natural Resources and Environment, 2008).

In addition, there was the problem of the 'commuter adjusted population'. Phitsanulok City was a city where many people came to study because it had many academic institutions such as Naresuan University, Phitsanulok Rajabhat University, Rajamangala University of Technology Lanna and vocational colleges. These people produced waste which had to be disposed of in the city. In Phitsanulok there are the hospital which is the centre of public health provision in the northern region of Thailand and private hospitals. People who came to receive services generated a large amount of waste.

There were also big businesses that had a lot of workers, hotels that had a lot of guests, events that had a lot of visitors; these people would generate a lot of waste when the capacity to deal with waste was limited. This burden was the responsibility of the municipality. Moreover, waste in Thailand had very high moisture. Thus, trying to dispose of waste by burning did not work well because it was like trying to burn water. Therefore, most waste incinerators of Thai LAOs were out of order after having been used for just a short time (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Moreover, there was no prototype of an effective LAO waste management system. Therefore, the executive body of the municipality, led by the mayor, sought assistance from foreign countries. As a result, they received academic assistance from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GTZ) in Germany to study waste management and solutions for the waste management problems of the municipality. GTZ helped the municipality study waste management problems, manage the data and educate all sectors which were related to the municipality's waste management problems about how to

solve those problems (Poboon, 2008). Additionally, waste generated by the municipality had been disposed of by the landfill method. It would be put into the municipality's landfill site in Bang Rakam District. However, this landfill site would be full in a short time due to the continuously increasing amount of waste, and due to inappropriate waste treatment. In addition, it led to other environmental problems. For this reason, the municipality used the results of the GTZ study to find an appropriate waste treatment for the municipality. As a result, the municipality agreed to apply mechanical biological waste treatment (MBT) to its waste management (Environmental Research Centre, Naresuan University, 2006).

Lastly, the municipality had a problem with lack of public awareness of waste management problems, and there was a lack of collaboration between LAOs and related central government agencies (Phitsanulok City Municipality, 2012). For example, an interview with a Phitsanulok City Municipality official found that some local people avoided paying the fees for municipal waste collection:

> "Some people did not pay their waste collection fees. They claimed that they never disposed their waste at the points provided by the municipality. The fact was that, although they did not dispose their waste at our municipality's waste collection points, they disposed their waste at markets, department stores or other public spaces where were also under the responsibility of the municipality in collecting waste and transporting waste from those places for the disposal. They did not realise this fact." (Interview with a Phitsanulok City Municipality official, 03/07/2017).

7.3 Creation of Waste Management Collaboration in the Phitsanulok City Municipality

The Phitsanulok City Municipality waste management collaboration was created in 1999. The municipality collaborated with the GTZ to study waste management problems and provide solutions to those problems in the municipality (Interview with a Phitsanulok City Municipality official, 03/07/2017). After that, the municipality collaborated with a private company to process waste that could not be recycled, composted or utilised in other ways with the mechanical biological waste treatment (MBT). That waste would then be transformed into refuse derived fuel (RDF) for use in industry. This extended the working period of the municipality's landfill site. In addition, the municipality also collaborated with local people in communities of the municipality to reduce their waste generation and to separate waste in their households (Phitsanulok Hotnews, 2016).

Forty per cent of waste was separated for recycling. Plastic waste was burnt to produce energy and oil while organic waste was turned into fertiliser. Less than 20 per cent of the waste generated in the municipality needed to be disposed of by the municipality (Manager Online, 2009). This was based on the principle of community-based solid waste management (CBM). The Phitsanulok City Municipality was the prototype of this principle for other LAOs both in Thailand and in other countries (Phitsanulok Hotnews, 2016). Data collection for the case study reveals that the municipality was the major actor in creating a waste management collaboration as a result of a policy made by municipal executives. They had set a goal for waste and environmental management emphasising public participation (Interview with a Phitsanulok City Municipality official, 03/07/2017).

The master project was called the ‘liveable city.’ It focused on developing the city and communities as well as developing environmental management, especially waste management. It started with the municipality encouraging local people to separate waste generated from their household and then to utilise that separated waste, depending on the type of waste. For example, saleable waste such as glass, paper and plastics could be sold to generate more income for families while organic waste such as food, plants, vegetables and fruit waste could be used for composting bio-fertilisers to be used in their households. For this reason, the amount of waste which needed to be disposed of by the municipality was greatly reduced. After that, there were many following waste management projects; for instance, the waste bank, environmental protection volunteers and garbage bin-free streets (Poboon, 2008).

7.4 Other Collaborative Organisations

The Phitsanulok City Municipality waste management collaboration can be divided into two periods. The first period was when the municipality collaborated with an international organisation to study waste management problems and found some solutions to those problems in terms of technology to dispose of waste. In this period, the collaborative organisation was the Deutsche Gesellschaft für Internationale Zusammenarbeit (GTZ) who gave academic assistance to the municipality by sending their specialists to work with the municipality. The second period was when the municipality used mechanical biological waste treatment (MBT), which was the result of the academic collaboration between the GTZ and the municipality to dispose of the waste generated by people within the municipality.

Another collaborative organisation for this task was the SCI Eco Services Co., Ltd., a cement industry which bought the refuse derived fuel (RDF) which was the product of the municipality's waste that had been disposed of by MBT from the municipality. They worked together through a memorandum of understanding (MOU). The collaboration between the municipality and this company aimed to utilise the RDF of the municipality by letting the company use it as fuel for cement kilns. The MOU covered a period of 36 months. In this period, the company had to buy 200,000 metric tonnes of the municipality's RDF and the municipality was responsible for transporting this RDF to the company (Manager Online, 2013).

This period was also when the municipality tried to reduce the amount of waste by dealing with the source of waste. Therefore, the municipality applied the CBM concept to encourage public participation in waste separation in communities. There were five major organisations or groups that collaborated with the municipality. The first group was the 'network of the environmental protection volunteers.' They were developed from the 'village health volunteers' under the Ministry of Public Health. This network was created in 1999-2000. It was composed of volunteers who encouraged communities within the areas of the municipality to separate waste to reduce the overall amount of waste. A Phitsanulok City Municipality official explained that:

> "The municipality wanted local people to work with us. The method that we used was knocking their doors to talk with them. We had encouraged local people who would like to be volunteers in informing and encouraging other people in the community to help reducing the amount of waste in the community by implementing

> the waste separation systematically. These volunteers agreed to work on behalf of the municipality to talk and encourage local people. We believed that, to make the community understand the purposes and the processes of the project, we should send people within the community to talk with others in the same community. If we sent outsiders to talk to the local people, they might be in doubt about the outsiders' approaches. Our volunteers had used evenings of weekends to approach people in the community, and activities of this project were held on either weekends or evenings of working days." (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Therefore, the second collaborative group was the group of all communities in the municipality, which would be the main actor in reducing the amount of waste by implementing waste separation at source in accordance with the CBM principle. They would separate saleable waste and organic waste from the total waste. The saleable waste would be sold to private companies, organic waste would be composted into bio-fertilisers, and the remaining waste would be disposed of with NBT technology by the private company that was mentioned earlier.

The third collaborative group was a group of private organisations who were waste buyers; for instance, the Wongpanit Company. They would come to buy waste from the communities (Interview with a Phitsanulok City Municipality official, 03/07/2017). The next collaborative group was a group of local schools under the municipality, from kindergarten to primary school levels. These schools used the waste management curriculum

produced by the municipality to educate students about waste management and encouraged children to take part in waste separation both at school and at home (Interview with a Phitsanulok City Municipality official, 03/07/2017). Students were the key actors of this group. A teacher from a collaborating school explained that:

> "Our students had created a high impact of better waste management because they were well educated about waste separation and how to utilise reusable materials from waste; for instance, they had learned how to create flowers from used straws, vases from used plastic bottles, and decorative ornaments from used aluminium cans. When they were back home, they brought these knowledges to teach their families, and encouraged their families to participate in the collaboration." (Interview with a local school teacher, 04/07/2017).

The final collaborative group was the group of other organisations that voluntarily participated in waste management collaboration in the municipality; for instance, hotels that applied the CBM principle. An owner of a collaborative hotel explained how his hotel participated in the collaboration:

> "There was an incident that I saw municipal employees collecting waste which had dirty leachate. It made me realise that we should help by managing our waste properly. I believed that if everyone collaborated, our environment would be better." (Interview with a hotel owner, (04/07/2017).

7.5 Management of Collaboration for Waste Management in the Phitsanulok City Municipality

The scope of management of the Phitsanulok City Municipality waste management collaboration covered the process of waste separation at source to the process of waste disposal. The promotion of public participation in waste separation, bio-fertiliser production, waste collection, waste transportation and maintaining cleanliness was under the responsibility of the Division of Public Health. Waste disposal was the responsibility of the Division of Public Works of the municipality (Interview with Phitsanulok City Municipality official, 03/07/2017).

The management structure was divided by the two periods of the collaboration. In the first period, when the municipality was collaborating with the GTZ, the municipality had assigned a working team (around 15 people). This team took care of the collaboration with the GTZ. The members of this team were staff of the Division of Technical Services and planning-related staff from other divisions of the municipality, such as the Division of Public Health (Interview with a Phitsanulok City Municipality official, 03/07/2017).

After the end of the collaboration with the GTZ, this working system continued into the period of working with other collaborative organisations. In this second period, the management structure was based on the CBM principle. The mayor, vice-mayors and city councillors were decision makers. Next, municipal staff was responsible for policy implementations as intermediary staff between the decision makers and communities. The

final part was composed of communities. They were responsible for the implementation of CBM in their households and surrounding areas (Phitsanulok City Municipality, 2012).

The working team that was established in the first period of the collaboration worked as a secretary of the collaboration. They contacted members of the collaboration for coordination and made appointments. In terms of the operational teams, it depended on the particular aspect of the collaboration. For example, when the issue was about encouraging local communities to make fertilisers from organic waste, it would be the responsibility of staff from the Division of Public Health of the community (Interview with a Phitsanulok City Municipality official, 03/07/2017).

There were two forms of working agreement for the Phitsanulok City Municipality waste management collaboration, consisting of MOUs and oral agreements. First, the MOU was made with the GTZ for the academic collaboration. This MOU stated that the name of the project was 'Solid Waste Management Programme for Phitsanulok.' This project was funded by the German government at a cost of 2,454,000EUR. The term of the project was for 1999 to 2005, and it was divided into two phases. The first phase was 1999-2002. The aim of the first phase of the technical assistance project between the Phitsanulok City Municipality and the GTZ was to develop a model for a sustainable solid waste management system for the Phitsanulok City Municipality in cooperation with the municipal administration, citizens and the private sector.

During this phase, all efforts were concentrated on developing a waste management system based on the principles of waste avoidance, waste reduction, waste recycling and waste disposal. Adjustments to the organisational system of the municipality with respect to waste management were also a priority. The main strategic areas for development assistance by the project were the transfer of technology and know-how, improvement of management in the municipality, cooperation with the public, and involvement of the local private sector and the surrounding cities and communities.

The second phase was 2002–2005. The aim of the second phase was to disseminate the experience gained in Phitsanulok City to other cities in Thailand. Additionally, support was provided to the Ministry of Natural Resources and Environment regarding the elaboration and improvement of the legal framework and regulations in waste management (Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Environment and Infrastructure Division, 2005). It was explained by the municipal official that the MOU was for a formal, large project and long-term collaboration (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Next, oral agreements were made with other collaborative organisations; for instance, waste buyer companies and communities. In other words, the municipality worked with these organisations with no contract. These were voluntary collaborations (Interview with a Phitsanulok City Municipality official, 03/07/2017). Although the oral agreements had nothing to guarantee the implementations of other collaborative organisations like written agreements, there were two reasons why oral agreements could function in the waste

management collaboration between the municipality and other organisations. First, the collaborative activities described in oral form were not complicated. For example, the Interview with the municipal office showed that the collaborative activity of waste buyer companies was just buying saleable waste from the participating communities while the collaborative activities of the participating communities were separating their saleable waste and organic waste from the whole waste. After that, they could sell the saleable waste to the waste buyer companies and compost the organic waste to make bio-fertilisers to be used in their farms (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Second, the win-win situation as a result of the oral agreements made other collaborative organisations continue their activities in accordance with the oral agreements. For example, the waste buyer companies bought saleable waste from the communities because they needed the waste for their businesses while the communities gained money from selling the waste. In addition, the communities separated their waste because they received more income from selling the saleable waste and composting the organic waste to make bio-fertilisers because they received fertilisers to be used in their farms. They did not need to buy chemical fertilisers as they had done before, as explained by the municipal official (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Each collaborative organisation played a different role in the collaboration. The municipality was the mentor of all the collaborative organisations. It provided things that those organisations needed, including the necessary funds. For the things that the municipality could not provide, the municipality would coordinate with external organisations requesting

their assistance or support (Interview with a Phitsanulok City Municipality official, 03/07/2017).

The GTZ was an organisation that gave academic assistance to the collaboration. The communities, local schools, and other participating organisations in the project based on the CBM principle were the organisations that implemented the waste management system by separating waste. In addition, the waste buyer companies were the organisations that bought saleable waste from the communities and other participating organisations. Finally, the company that applied the NBT technology was also the organisation that implemented waste management by disposing of the remaining waste.

In terms of decision making, the municipality used the bottom-up decision-making principle for all decisions, not just for decisions related to waste management collaboration. This was about listening to the communities, as an official of the Phitsanulok City Municipality explained:

> "We didn't assume what the communities thought. We always asked what they thought, and what they really needed to do." (Interview with a Phitsanulok City Municipality official, 03/07/2017).

7.6 Collaborative Capacities of Collaboration for Waste Management in the Phitsanulok City Municipality

There were 11 types of collaborative capacities that the Phitsanulok City Municipality used for accomplishing its waste management collaboration, as presented in Table 7.2.

Table 7.2: Summary of Collaborative Capacities for Waste Management in the Phitsanulok City Municipality

Number	Type of collaborative capacities	Examples of activities
1.	Financial	The municipality allocated 30 million baht of the municipality's annual budget to support waste management per year.
2.	Staff	Most of the municipality staff who worked for the waste management collaboration had knowledge and experience appropriate for their tasks.
3.	Policy	The municipality had environmental management policies that supported the waste management collaboration between the municipality, communities and other sectors.
4.	Training	The municipality provided training about how to create a community waste bank and composting fertilisers from organic waste to communities and provided training for environmental protection volunteers every year by municipality staff.

5.	Incentive	The municipality used incentives to help encourage public participation in all municipal projects, not just waste management collaboration projects.
6.	Communication	The municipality frequently had meetings with collaborative communities.
7.	Problem Report	Local people could report problems to the municipality through community leaders who generally had meetings with the municipality every month.
8.	Participation encouragement	The municipality created the environmental protection volunteer group to encourage communities to participate in waste management collaboration.
9.	Information sharing	The municipality used its official website and other media to share information about its waste management collaboration projects and to receive comments from other collaborative organisations.
10.	Solution finding	The municipality quickly responded to problems and had collective discussions with other collaborative organisations to find solutions
11.	Innovation	The municipality created and supported community learning centres which were innovations for waste management collaboration.

The first capacity was the financial capacity. The municipality focused on environmental management so it allocated a lot of money to support its environmental management projects. For example, the municipality allocated 25 per cent of its annual budget to support

environmental management problems (Poboon, 2008). Moreover, the municipality received 1.1 million baht for a project to reduce the release of short-lived air pollutants. This project also covered the implementation of waste separation at source and utilisation of separated waste, such as organic waste (Phitsanulok Hotnews, 2016), which was related to waste management collaboration between the municipality and communities. At the present time, the major source of funds for waste management collaboration was from the annual budget of the municipality. The municipality spent more than 30 million baht per year. Waste collection and waste transportations required money to pay for energy and staff wages. The municipality had a four-year plan to manage this project. This plan was fixed and did not vary much year by year (Interview with a Phitsanulok City Municipality official, 03/07/2017).

The staff capacity was the second collaborative capacity of the municipality. The waste management collaboration was the responsibility of the Department of Public Health of the municipality. Most staff in this department had the knowledge and experience appropriate for their tasks. Only a small number of staff did not have direct knowledge of environmental management but they were motivated to be responsible for the tasks (Poboon, 2008). Furthermore, staff always received training, had opportunities to visit other organisations to learn from them, exchanged knowledge and experience with other organisations, and systematically managed knowledge within the municipality (Poboon, 2008). In terms of the readiness of the staff, the municipality had a big working team (15 people) and the sub teams by mission to work for the collaboration, although it was extra work in addition to their routine duties (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Next, the municipality did not have a direct ordinance for waste management collaboration because the municipality could not create an ordinance using the frame of the Ministry of Public Health laws (Interview with a Phitsanulok City Municipality official, 03/07/2017). However, the municipality had the policy capacity to collaborate since it had environmental management policies in three major areas: increasing green spaces and public parks; increasing efficiency of waste disposal; and encouraging public participation in waste management (Poboon, 2008). The last two major policies supported waste management collaboration between the municipality, communities and other sectors.

The municipality had the capacity to provide training and workshops for communities about waste management, such as creating a community waste bank and composting fertilisers from organic waste. The municipality also provided annual training for environmental protection volunteers (Interview with a Phitsanulok City Municipality official, 03/07/2017). These training events were organised by municipal staff who had knowledge and experience of waste management. In addition, the municipality had the capacity to take community representatives to visit and learn from communities in other LAOs (Poboon, 2008).

Additionally, the municipality used incentives to help increase public participation in all municipal projects, not just waste management collaboration projects. However, the municipality used those incentives carefully and rationally, according to the former vice-mayor of the municipality. He explained that the rationale that the municipality used was to help people understand the municipal projects, not just to please them without any reasons (Poboon, 2008).

The sixth capacity was the communication capacity. The municipality often had meetings with collaborating communities. In the first period of the projects, they had two meetings per week. After the projects had been implemented effectively, the number of meetings was reduced to one per month. In some projects, they had one meeting every two months to follow up on the projects such as the community waste bank project. These meetings were for having conversations between the municipality and the communities. They also gave opportunities to the communities to discuss problems they were experiencing with the municipality. Sometimes the mayor and other executives of the municipality attended these meetings by themselves (Poboon, 2008). The technique that the municipality used to communicate with the communities and other collaborative organisations was called 'dialogue.' The municipal official explained that,

> "It was about sitting together to discuss about some topics; for instance, the municipality had dialogues with collaborative communities. There was no hierarchy, no people sat at the top of the table or dominated the discussion. The municipality also trained staff and volunteers to be a good listener and a good speaker." (Interview with a Phitsanulok City Municipality official, 03/07/2017)

Some might argue that it was not possible to avoid a hierarchy in a discussion that the municipality executives and officials had with the communities. It was true that there was some kind of hierarchy because the executives had more powers in the municipality than the officials by law. However, this hierarchy was not the factor that could affect the result of the discussion since the communities were likely to implement activities for the waste management collaboration due to the benefits they would receive from those activities, such

as money and fertilisers, which was part of the win-win situation as explained in section 7.5 of this chapter.

The next capacity was the capacity to report problems. Local people could report problems to the municipality through community leaders. The community leaders would then report the problems received from people in their communities at the meetings with the municipality. In general, there were meetings between communities and the municipality every month. Moreover, local people could report problems through the customer service centre of the municipality (Poboon, 2008). Additionally, local people and other collaborative organisations were able to report their problems to the municipality via the internet, such as through the official internet website of the municipality or through the mayor's Facebook page. They could also report the problems via the municipality hotline (Interview with a Phitsanulok City Municipality official, 03/07/2017).

The capacity to encourage participation from other organisations was also important. The municipality encouraged local people to participate in waste management collaboration by creating public awareness of the collaboration (Poboon, 2008). The municipality chose to use direct communication. It created a network of environmental protection volunteers. The method that these volunteers used was knocking on doors to talk with local people on behalf of the municipality. This was based on the idea that, to make a community understand, the volunteers that the municipality used to inform local people should be people within that community because outsiders might make local people doubt their sincerity. The volunteers approached people in the evening or at weekends because people are usually not at home in

the afternoon (Interview with a Phitsanulok City Municipality official, 03/07/2017). The result was that local people collaborated well with the municipality in implementing household waste separation, garbage bin-free roads and community waste banks (Poboon, 2008).

The ninth capacity was the capacity to share information. The municipality promoted its projects to the public through various media, such as community radio broadcasting, publishing books and pamphlets, and through its official internet website. This website was not just a channel to promote the projects by the municipality, it was also a channel for communities and other collaborative organisations to share opinions and report problems that they experienced (Poboon, 2008). Using Facebook, the municipality also promoted environmental protection projects, mobile waste management units, information about communities winning waste management awards and other related information. Lastly, the municipality had a municipal journal to promote related projects. However, it was sometimes not easy for people to access it (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Furthermore, the municipality had the capacity to find solutions to problems. When a collaboration experienced any problems, the municipal executives needed to know the problems and to discuss solutions. The communities were informed about the problems and asked for collaboration to help to solve the problems. In addition, each community had a community leader. The municipality had meetings with community leaders from all 14 communities every month. Furthermore, the communities had meetings with their networks

of communities and other organisations every year (Interview with a Phitsanulok City Municipality official, 03/07/2017).

The last capacity was the capacity to be innovative. For instance, in community learning centres collaborative organisations could hold brainstorming sessions with their members to create new products made of waste. A Phitsanulok City Municipality official stated that,

> "The municipality offered the opportunity to grow up to participating communities. For example, learning centres of successful communities could generate incomes from visitors such as collecting fees from the visitors, and selling products made of saleable or recyclable waste. The municipality would help those communities to create and promote their learning centres and other projects so that other people and organisations would be interested and then visit the communities." (Interview with a Phitsanulok City Municipality official, 03/07/2017).

7.7 Problem Solving as an Outcome of Collaboration for Waste Management in the Phitsanulok City Municipality

In 2008, the Phitsanulok City Municipality reduced the amount of waste from 140 metric tonnes per day to 80 metric tonnes per day (Department of Environmental Quality Promotion (DEQP) in collaboration with Regional Environment Offices, Ministry of Natural Resources and Environment, 2008). The municipality's areas became a clean city (Poboon, 2008, p. 18), for example, there was no waste dropped on public roadsides (Poboon, 2008, p. 19). Consequently, the municipality reduced the municipal waste collection time from once per

day to once per week. This reduced 70 per cent of the municipality's spending on waste management. Moreover, the municipality could separate 81.45 per cent of recyclable and organic waste from the total waste for utilisation. Therefore, only 18.6 per cent of waste needed to go to landfill (Department of Environmental Quality Promotion (DEQP) in collaboration with Regional Environment Offices, Ministry of Natural Resources and Environment, 2008).

In addition, the municipality created a customer service centre to receive reports about waste management problems and other problems that people in communities experienced. In the first period of running this centre, there were many problems reported. Since then the number of reports has continuously decreased (Poboon, 2008, p. 24); therefore, it seems clear that waste management problems have been much reduced. Furthermore, it was claimed by the mayor of the Phitsanulok City Municipality that the Phitsanulok City Municipality was the first prototype of LAOs in Thailand which was successful in resolving waste problems. This success was reflected by the fact that it won the 'liveable city' award from the Thai Environment Institute (TEI) (Poboon, 2008, p. 18).

7.8 Working Relationship as an Outcome of Collaboration for Waste Management in the Phitsanulok City Municipality

The municipality defined the working relationship with other collaborative organisations as a 'win-win situation.' For example, the municipality had a win-win situation with an international organisation. The municipality received academic assistance whereby the international organisation received data about results of the assistance from the municipality.

Although the working period as stated in the MOU had ended, the municipality still sent a report to the GTZ annually about the progress of the project. Furthermore, it had a win-win situation with waste buyer companies. The municipality reduced the amount of waste it sent to landfill and the companies received the waste they needed for their business. It can be argued that these win-win situations made the collaboration successful (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Moreover, it has been reported that the level of participation in other community collaborative projects of the municipality increased after having worked together in waste management collaborative projects (Department of Environmental Quality Promotion (DEQP) in collaboration with Regional Environment Offices, Ministry of Natural Resources and Environment, 2008). This is supported by the fact that the closeness between local people in the community and municipal staff who worked as intermediary staff was clearly shown. Their working relationship was informal. Local people seemed comfortable about sharing their ideas on a collaborative project. For example, some people told municipal staff about the products made of waste that they found other communities made then they discussed ideas to create new products in the community (direct observation at community 1, 05/07/2017).

7.9 Other Benefits of Collaboration for Waste Management in the Phitsanulok City Municipality

Reputation was another benefit that a collaborative member received from the waste management collaboration. The participating communities gained a good reputation as they

were prototypes of complete waste management communities. This made other local communities, both in Thailand and in other countries, want to visit those participating communities to learn from them (Poboon, 2008, p. 25). Moreover, the municipality received awards for their collaborative works. For example, it received the 'liveable city' award from the Thai Environment Institute (TEI) many times (Poboon, 2008, p. 18) and the PCD award from the Pollution Control Department, Ministry of Natural Resources and Environment for demonstrating best practice in environmental management in 2008 (Department of Environmental Quality Promotion (DEQP) in collaboration with Regional Environment Offices, Ministry of Natural Resources and Environment, 2008).

7.10 Recommendations for Making Collaboration for Waste Management More Effective

Six recommendations for improving the effectiveness of the waste management collaboration can be identified from analysing the interviews and related documents. First, it was additional participants from other related sectors. This reflected the increased collaboration from other organisations. Another recommendation was additional training because it could be beneficial in terms of enhancing the knowledge of the participating people. Third, it was argued that the municipality did not use an expert in the latest period of a collaboration because the collaboration was simple, it was about working with communities. Moreover, if the municipality used content that was too academic, local people in communities would not understand. Thus, the municipality made the contents of the collaboration simple. Next, additional budgets from the central government were desirable for every related organisation since they could spend those funds on good systems and

equipment for running their collaborations (Interview with a Phitsanulok City Municipality official, 03/07/2017).

Poboon (2008) claimed that the former vice-mayor of the Phitsanulok City Municipality recommended a collaborative organisation to review the work that had been done, to follow up the results of previous work and to give opportunities for other collaborative organisations to share their opinions. First, reviewing the work that had been done, such as previous plans and previous implementations, would help in setting goals for the new work. Next, following up the results of previous work, for example, after the municipality had trained local people in composting fertilisers, the municipality would follow up to see whether local people really made fertilisers from waste or not. If there was only a small number of people who did, the municipality would consequently find out the weak points that made local people not want to do what they had been trained to do. Those weak points would be then solved by the municipality. Finally, giving opportunities for other collaborative organisations to share their opinions could lead to a positive cycle of collaborative work. For example, in a municipal waste management collaboration, local people could share their opinions and present their communities' needs so the municipality was able to respond to those opinions or needs quickly. This encouraged local people to collaborate with the municipality in other municipal projects.

Conclusion

The waste management of the Phitsanulok City Municipality was just one part of its environmental problem management, but it was the most important part for the municipality. Like Bangkok, Phitsanulok had a problem with the commuter-adjusted population because it was a big city and a centre of education to which people from many cities came to study. In the collaboration, the executive body, especially the mayor, tried to communicate with local people through listening to people's opinions and requests. The Phitsanulok City Municipality collaborative waste management policy was first known as the waste management policy, which emphasised public participation, especially the participation of local people in communities within the municipality. This policy was later applied and was known as the community-based waste management (CBM) policy. The executives of the municipality were accredited for the success of waste management collaboration as well because the old executives had a good vision in dealing with possible problems caused by the increasing waste. In addition, the new executives continued the old executives' policy, and developed that policy based on the waste management issues of the present period.

The Phitsanulok City Municipality was effective in terms of its finances, staff, policy and training. However, it was particularly effective through offering incentives to other collaborative organisations and its capacity to communicate with other collaborative organisations through the dialogue method, which ensured that staff and volunteers of the municipality were good listeners and speakers. It was claimed that the waste management collaboration of this municipality was successful because it could resolve waste management problems and create a win-win situation in the working relationship between

collaborative organisations. The roles of collaborative organisations consequently became part of their routines. The municipality would further this collaboration and encourage their people towards more self-learning about waste management.

CHAPTER 8

WASTE MANAGEMENT COLLABORATION IN THE KHON KAEN CITY MUNICIPALITY

Introduction

This chapter is about the waste management collaboration in the Khon Kaen City Municipality. To do this, the chapter draws on three research methods consisting of document study (books, government reports, research articles, and other official document), semi-structured interview (two interviews with representatives of Khon Kaen City Municipality and two interviews with representatives of government organisations), and direct observation (a waste-to-electricity plant and a landfill site of Khon Kaen City Municipality). Some of the interviews are cited in this chapter but others only provided background information. The Khon Kaen Municipality was selected for two reasons. First, it is a general LAO which is outstanding in waste management, and collaborating with local citizens and other organisations or groups in their waste management, derived from the discussions with Thai experts in waste management and Thai local government. Second, it has received the King Prajadhipok's Institute awards for networking with the public sector, the private sector and the civil society in 2011 and 2014; and the golden King Prajadhipok's Institute awards for LAOs for networking with the public sector, the private sector and civil society in 2016. In addition, it has received the zero-waste community award in 2014 (Khon Kaen City Municipality, 2018b).

This chapter is divided into nine sections consisting of: an overview of the Khon Kaen City Municipality; waste management problems in the Khon Kaen City Municipality; the creation of the Khon Kaen City Municipality for waste management collaboration; other collaborative organisations; the management of the Khon Kaen City Municipality waste management collaboration; collaborative capacities of the Khon Kaen City Municipality waste management collaboration; problem solving as an outcome of the collaboration; working relationship as an outcome of the collaboration; and future tendency and recommendations for making waste management a collaboration for more effective in the future.

8.1 Overview of the Khon Kaen City Municipality

The Khon Kaen City Municipality covers an area of 46 square kilometres (Khon Kaen City Municipality, 2018a). The current population of Khon Kaen City Municipality is 118,262 (Khon Kaen City Municipality, 2015). It generated 212.5 metric tonnes of waste per day in 2014, 219.1 metric tonnes of waste per day in 2015, and 269.42 metric tonnes of waste per day in 2016 (Department of Pollution Control, 2015; Department of Pollution Control, 2016; Department of Pollution Control, 2017).

It locates in Khon Kaen Province, which is in the centre of the north-eastern part of Thailand. It is a strategic location because of the confluence between the north-south and the west-east of the Great Mekong Sub-Region Economic corridors. Its economy mainly relies on the industrial, commercial and agricultural sectors (The Joint Graduate School of Energy and Environment (JGSEE) et al., 2013). Khon Kaen Province and Khon Kaen City Municipality

are in different government systems; Khon Kaen Province is in the regional government system while Khon Kaen City Municipality is in the local government system. However, Khon Kaen City Municipality is one member of a Khon Kaen Province collaboration, named the 'Khon Kaen Green City' network.

The major sources of waste generated in the municipality are markets, restaurants, and universities and colleges in Khon Kaen City (Asian Urban Information Centre of Kobe, 2008). There are two divisions of the municipality which have direct responsibility for managing municipal waste. The Division of Public Health and Environment has responsibility for collecting and transporting waste and the Division of Civil Works is responsible for disposing of waste (Asian Urban Information Centre of Kobe, 2008). There are six waste management centres in total. Each waste management centre consists of a landfill site, a waste weighing building and a machine storage building. These waste management centres are run by large LAOs in the province consisting of Khon Kaen City Municipality, Baan Phai Town Municipality, Muang Phon Town Municipality, Chumphae Town Municipality, Nampong Sub-District Municipality and Kranuan Town Municipality, with budgets from the central government allocated through provincial government organisations. Although the waste management centres are managed by large LAOs, they are located in small LAO areas outside the city centre, surrounded by sugarcane plantations or other plantations (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

Table 8.1: General Information about the Khon Kaen City Municipality

Number	Type of information	Details
1.	Size of area	46 km^2
2.	Size of population	118,262
3.	Waste generation rates of the latest three years according to national records	212.5 tonnes per day in 2014 219.1 tonnes per day in 2015 269.42 tonnes per day in 2016

8.2 Waste Management Problems in the Khon Kaen City Municipality

Since Khon Kaen City Municipality is a member of Khon Kaen Province's 'Khon Kaen Green City' network that covers a collaboration for waste management in a provincial level, the waste management problems of Khon Kaen Province should also be considered. Khon Kaen Province is known as a famous university town. Consequently, its growing population of both locals and incoming students resulted in an increase in waste, especially in the areas of the municipality. It was predicted that the waste volume would be 182 to 256 metric tonnes per day by 2025 (Team Group, 2018). Turning to the waste management problems of Khon Kaen City Municipality, it was claimed that the major waste management problem of the municipality was the limited landfill site for the continuously increasing waste of the municipality (Asian Urban Information Centre of Kobe, 2008). The municipality's landfill

site has been used since 1968 (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

The municipality started to experience problems with full landfill sites in 1996 (Khon Kaen City Municipality, 2017). More than 800,000 metric tonnes of waste accumulated over the past five decades at the 16-hectare landfill site at Ban Kham Bon, Muang District, Noen Thon Sub-District of Khon Kaen City. However, residents who had been living around this landfill site believed that the actual amount of waste could exceed 1 million metric tonnes when the waste beneath the ground was included. These residents had been negatively impacted by the foul smell of the waste, the waste water that leaked and polluted rice fields and water sources, and occasional fires within the landfill site that produced a lot of smoke. The residents protested and filed their complaints about these problems many times over the years. The municipality made efforts to tackle the negative impact of the landfill site on the residents and to manage the amount of waste in order not to reach the maximum capacity of the site. Nevertheless, the amount of waste was increasing continuously because the city was expanding and the population was growing (Janphrom, 2015).

8.3 Creation of Collaboration for Waste Management in the Khon Kaen City Municipality

There were two levels of waste management collaboration that the Khon Kaen City Municipality participated in: provincial level and municipal level. At the provincial level, Khon Kaen Province had established the ‘Khon Kaen Green City’ network, which was a collaboration of people and education, private and government sectors. This network was

under the vision of the Khon Kaen Province, which stated that it wanted "To be the coolest and happiest place to live in the world within 2020 and to be the model of a low carbon city in the Mekong Region." The people sector of the network consisted of temples and community leaders. The education sector consisted of Khon Kaen University and schools in Khon Kaen Province.

The private sector consisted of solicitors, the chamber of commerce, the NGO coordinating committee in the north-eastern region, private companies and media. The government sector consisted of the 10th Regional Environmental Office, LAOs (especially the Khon Kaen City Municipality) and the Khon Kaen Province. To achieve this vision, Khon Kaen Province had implemented activities based on four strategies proposed by the Municipal League of Thailand, consisting of the 'Green City,' 'Clean City,' 'City of Energy Care' and 'Living Sustainable City' strategies (The Joint Graduate School of Energy and Environment (JGSEE) et al., 2013; Seemann, Detubio and Villanueva, 2016).

In the Clean City strategy, Khon Kaen Province aimed to be a zero-waste area by implementing integrated waste management. First, the zero-waste office management involved educating Khon Kaen's governmental officers about waste separation, providing waste separation bins in Khon Kaen's governmental offices, having waste reduction competitions among departments within each Khon Kaen governmental office, encouraging officers to use e-mail instead of paper mail, providing paper cups instead of plastic glasses for visitors to Khon Kaen's governmental offices, encouraging officers to use their own

glasses to drink water in the office, and encouraging officers and visitors to use cloth bags instead of plastic bags.

The management of solid waste involved waste management at source, waste management once collected and waste management at disposal. The waste management at source consisted of constructing compost pits for composting waste in households, temples and schools, producing biogas from waste, and having a campaign for exchanging hazardous waste for eggs, rice or scores (for waste management awards) in the communities. Waste management once collected consisted of separating waste compositions and enhancing the recycling rate of waste. It had set the goal that the recycling rate would be increased to 15 per cent of all generated waste in 2015, which was the year that the waste recycling campaign was first implemented. The recycling rate would then be increased to 30 per cent of all generated waste by 2030 and would then continue at 30 per cent of all generated waste up to 2050. Finally, waste management at disposal involved converting waste to energy; for instance, converting plastic waste into oil (The Joint Graduate School of Energy and Environment (JGSEE) et al., 2013; Seemann, Detubio and Villanueva, 2016).

At the municipal level, the municipality had made attempts to select new areas to construct new landfill sites. However, these attempts had faced protests from local people near those areas. Mayor Theerasak Theethapha, the former mayor of the Khon Kaen City Municipality said to the *Nation* newspaper (Janphrom, 2015) that "This meant the city had to find new solutions with minimum environmental impacts." He talked about two solutions:

> "The first solution of constructing a wastewater-treatment system, featuring a 20-rai (approximately 8 acre) pond with 129,000-cubic-metre capacity to gather polluted water, has lessened the problem of polluted water leaking into villagers' farmland. The next challenge, however, was to tackle the huge mountain of garbage, and the most suitable solution was an electricity-generating plant powered by burning the municipality's solid waste."

The former mayor added that "The idea was in line with the government policy to support alternative energy production and the Electricity Generating Authority of Thailand's policy to buy electricity from retail power generators." To implement the solution of creating a waste-to-energy plant, he stated that "The municipality finally found a private company with expertise and funding for 100 per cent of the investment required to build such power plant. 800 million-baht (approximately 18 million GBP) power plant will be operated by the Alliance Clean Power company and applies the direct-fired-furnace method to produce heat for electricity generation," said the former mayor. He also talked about the capacity of this plant to dispose of waste: "The plant, also equipped with an air pollution-eradication system, will dispose of tonnes of garbage at a low cost of less than 249 baht (approximately 5.66 GBP) per metric tonne for the first three years. This would rise by 10 per cent every three years, with the operating period initially set at 20 years. When completed, the plant is expected to dispose of 450 metric tonnes of garbage a day and yield 4.9 megawatts of power per day – 4.5 megawatts will be sold, and the rest used within the facility." (Janphrom, 2015)

Furthermore, the former mayor referred to the reactions of related sectors: “Public meetings about the project with stakeholders, including villagers, went well, as people agreed it was a good solution for Khon Kaen, provided that all impacts on villagers would also be addressed and solved.” This point was also mentioned by an officer of the 10th Regional Environmental Office:

> “People wanted the municipality to do something to reduce the amount of waste which had cumulated for 40 – 50 years. Therefore, people did not protest against the municipality’s attempt when the municipality did the public hearing for the construction of an electricity generating plant.” (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

As a result, “the work on the project commenced in 2011 and all steps have been carried out in accordance with the law, including licence application,” said the former mayor of the Khon Kaen City Municipality (Janphrom, 2015).

8.4 Other Collaborative Organisations

The Khon Kaen City Municipality collaborated with three sectors, consisting of local people, a private company and the Khon Kaen Province. A 10th Regional Environmental Office officer explained that:

> “Province in this context covered all organisations under the provincial administration of the provincial governor. For example, the Khon Kaen Provincial Office for Local Administration was responsible for law-related issues, the Khon Kaen Provincial Treasury's Office was responsible for budget disbursement issues,

> and the Khon Kaen Office of Natural Resources and Environment was responsible for environment-related issues and requesting central government's budgets for the municipality through the Ministry of Natural Resources and Environment." (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

Working alongside related provincial (and also regional) government organisations was an outstanding characteristic of the Khon Kaen City Municipality waste management collaboration. The 10th Regional Environmental Office was one example of a regional government organisation that collaborated with the Khon Kaen City Municipality. It was responsible for environmental management in five provinces, consisting of Khon Kaen, Mahasarakham, Kalasin, Nongbualamphoo and Chaiyaphum. Khon Kaen the province in which the 10th Regional Environmental Office was located (Interview with a 10th Regional Environmental Office officer, 13/06/2017). An officer of the 10th Regional Environmental Office explained the overall role of the 10th Regional Environmental Office:

> "In the whole picture, when a LAO received the budget from the central government, the Regional Environmental Office had a role as a commissioner to consider the projects in terms of the techniques; for instance, we considered like "Was the technology they used appropriate?" and "Was it worth the cost to do this project?" Before this stage, the project had been filtered by provincial organisations such as a provincial environmental office." (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

The officer added more detail:

> "When the municipality applied for the 600 million baht of budget for constructing an integrated waste management centre, the regional environmental office was a commissioner who considered the project. We asked about the techniques to be used in a waste management centre whether how appropriate they were. The consideration was finally crystallised to construct only a leachate pond with around 73 million baht of budget." (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

After that, when the municipality constructed a waste-to-energy electricity generating plant, the officer said that,

> "The regional office would play an important role when the construction was finished, and the plant was about to operate because local people reported to the central government that they received negative impacts from the plant. Therefore, the regional environmental office worked with the Pollution Control Department and the Department of Environmental Quality Promotion (Ministry of Natural Resources and Environment) in measuring environmental standard at the electricity generating plant to find out its impacts on local people." (Interview with a 10th Regional Environmental Office Officer, 13/06/2017).

8.5 Management of Collaboration for Waste Management in the Khon Kaen City Municipality

There were two issues that the Khon Kaen City Municipality waste management collaboration aimed to deal with. The first issue was involving citizens to reduce the amount of waste in the municipality. This issue was related to a waste management strategy of a provincial level network. Therefore, the municipality promoted 'citizen involvement' to improve its waste management. Public awareness of waste management and public participation in waste management were encouraged through the involvement of citizens in waste management. Moreover, citizens had opportunities to have discussions, share ideas, do surveys and have mutual motivation with other stakeholders through citizen involvement activities such as visiting the waste management plant to learn about Khon Kaen City's waste management issues. The municipality also had opportunities to learn from communities about waste management (Asian Urban Information Centre of Kobe, 2008).

This municipal policy was called 'stop where it starts.' It encouraged citizens to reduce the amount of waste they generated by separating waste at source and re-using materials from waste. One example of the projects regarding this policy was the 'Pig Feeding' project. The project encouraged citizens to separate food waste; for instance, fruit and vegetable waste from markets, restaurants, temples, educational institutions and households for composting into liquid fertilisers. The reason this name was used was because, in Thailand, decomposing food was traditionally fed to pigs. This project reduced the amount of waste and the use of chemical fertilisers as well as making the city environment cleaner.

Furthermore, it was believed that agricultural products made in the communities that used the fertilisers from waste were safer than products that used chemical fertilisers. The project aimed to reduce the amount of waste generated in the municipality by two metric tonnes per day by separating food waste for composting fertilisers. Additionally, the project involved the collaboration of organisations that generated food waste such as restaurants, markets and educational institutions, all of which separated food waste, with volunteers from the communities who collected food waste and composted fertilisers, farmers in the municipality areas who used and promoted the use of liquid fertilisers from waste, and the municipality itself, which promoted and evaluated the project as well as providing funds and necessary equipment for the project (Asian Urban Information Centre of Kobe, 2008).

The second issue was the limited landfill site of the municipality. There was a timeline of projects that the municipality had implemented to deal with the problem of limited landfill capacity and its consequent problems, such as the smell of waste, and wastewater leaking into farmlands. In 1998, the municipality improved the municipality's landfill site in accordance with the results of a study called 'the Appropriateness and the Design of the Improvement of the Waste Management System (of the Municipality)' by Khon Kaen University, which was funded by 40 million baht (approximately 906,400 GBP) from the Ministry of Science and Technology.

After that, the municipality proposed the 'Installation of a Complete Range of Waste Management System' project to receive funding from the Office of Environmental Fund in 2007. However, this project did not receive funding until 2012 and the project was changed

to be ‘Construction of a Leachate Collection Pond and a Leachate Pumping Station in the area of the landfill site at Ban Kham Bon.’ Next, the municipality was funded by the Energy Conservation Promotion Fund (ENCON Fund), Energy Policy and Planning Office, Ministry of Energy to run the ‘Promotion of the Waste-to-Oil Process’ project. Finally, the municipality engaged a private company to operate the ‘Solid Waste Management and Disposal by the Waste-to-Electricity Process’ project in 2011, and this project is still ongoing in the present time (Khon Kaen City Municipality, 2018c). In terms of decision making within the collaboration, the municipality had a ‘community forum.’ A 10th Regional Environmental Office officer gave an example of how decision making worked in the forum:

> “They have a community forum and this forum is strong. People have participated in the forum and understood their desired projects. For example, the electricity plant project that invites the private sector to invest. They understand that the municipality must follow the agreed processes including the filtration of the project. They have to consider details over and over to make the project worth the cost.” (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

8.6 Collaborative Capacities of Collaboration for Waste Management in the Khon Kaen City Municipality

My research identified six collaborative capacities in this case study, as presented in Table 8.2.

Table 8.2: Summary of Collaborative Capacities for Waste Management in the Khon Kaen City Municipality

Number	Type of collaborative capacities	Examples of activities
1.	Financial	The private sector invested in a waste-to-energy project for the municipality.
2.	Training	The municipality hosted community educational workshops on the '3Rs' principle for waste management and supported training on composting waste into fertilisers in the communities.
3.	Equipment	The community provided 25 recycle bins around the city for the waste management collaboration initiative.
4.	Staff	The municipality's officers who worked for the waste management collaboration had a high level of education, were intelligent, flexible could get along well with local people, and had opportunities to learn about waste management technologies from foreign countries when other collaborative organisations' officers had work experience in other provinces which could be applied to the current waste management collaboration.

5.	Innovation	The waste management collaboration used the space that governmental committees provided to exchange ideas until there was a creation of the hazardous waste management by PAO.
6.	Communication	The waste management collaboration used an online chat application which was easy and fast for communicating either within the organisation or between collaborative organisations. The new Act created a committee that would hold meetings for all collaborative organisations.

The first collaborative capacity that Khon Kaen City Municipality had was the financial capacity. The major sources of finance were the municipality itself and private companies who invested in waste-to-energy projects. The second collaborative capacity was training. The Division of Environment of Khon Kaen City Municipality hosted community educational workshops on the '3Rs (reduce, reuse and recycle)' principle for waste management and supported training on composting waste into fertilisers in 15 communities within the municipality for the waste management collaboration initiative (Swartz and Powers, 2016). Another collaborative capacity was equipment. The Division of Environment of the municipality provided 25 recycle bins around the city of Khon Kaen for the waste management collaboration initiative (Swartz and Powers, 2016).

The fourth collaborative capacity was staff. Municipal staff was educated and had a good vision statement. In terms of education, a 10th Regional Environmental Office officer explained that:

> "The statement that says, "LAO staff is foolish." should be ignored because, from my experience, officers of the municipality have high academic degrees in related fields and have been well trained from well-known institutes, particularly those who are directors of the Division of Public Health and Division of Public Works, so we do not need to question their levels of intelligence. We respect each other's potentiality. They are intelligent, flexible and can get along with local people very well." (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

An interview with a 10th Regional Environmental Office officer also explained the vision statement of municipal staff:

> "They have a good vision statement. You might have heard that there is much LAO staff that corrupts but this LAO staff has a good vision statement and apply their vision statement to develop their responsible areas. They think about using appropriate techniques for productive works in a long run. Not just on waste management but on every municipal policy; for instance, developing Khon Kaen City to be a smart city, and installing the light rail transit (LRT) system." (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

He also mentioned that Khon Kaen City Municipality sent officers to visit foreign countries in order to learn about waste management technologies. Moreover, other collaborative organisations; for instance, a provincial government organisation, had officers who had worked in other provinces and experienced how other provinces solved their waste management problem. These officers could apply their work experience to the works of the

Khon Kaen City Municipality waste management collaboration (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

The fifth collaborative capacity was innovation. Innovations came from consulting and exchanging ideas on the space within a waste management collaboration. A 10th Regional Environmental Office officer explained the stages in this context that, "They were the stages provided by the governmental committees for related sectors." One innovation from these stages was a policy to make a provincial administrative organisation (PAO) be the core organisation in hazardous waste management. This public policy was initiated in Khon Kaen Province. It came from related organisations exchanging ideas during a collaboration. In the past, the Khon Kaen municipality had been responsible for hazardous waste management but the current Director of the regional environmental office raised the issue about letting the PAO manage hazardous waste at a provincial level. Other collaborative organisations were interested in this issue and exchanged ideas until it was crystallised as a public policy (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

The last collaborative capacity was communication. Within the waste management collaboration, an online chat application was used for communication both within the organisation and across the organisations. For example, a 10th Regional Environmental Office officer stated that "the chief of each department of governmental organisations commanded the officers through 'Line application'" (Interview with a 10th Regional Environmental Office officer, 13/06/2017). This made communication in a collaboration easy and fast.

Moreover, he mentioned that the Maintenance of the Cleanliness and Orderliness of the Country Act, B.E. 2560 assigned the Ministry of Interior to be the core organisation in driving the policy to make LAOs have a 'committee on solid waste management.' This committee would invite related sectors in waste management to have meetings together. The committee would hold a meeting, send invitation letters to related organisations (e.g. central government organisations, LAOs and local communities), assign the roles of president and commissioners, and count the attendants. It was a formal channel for communication among collaborative organisations that enabled many organisations to communicate together at the same time in the meeting (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

8.7 Problem Solving as an Outcome of Collaboration for Waste Management in the Khon Kaen City Municipality

The Khon Kaen City Municipality collaboration for waste management generated problem-solving outcomes on two levels, provincial and municipal. At the provincial level of the waste management collaboration, there was a process to make local people aware of the importance of waste separation at source. The province tried various strategies to encourage local people to reduce waste at its source, but the provincial governor emphasised the 'funeral provision fund from the community waste bank' project. In the past, there were various policies to encourage communities to participate in waste separation; for instance, having recyclable waste banks in schools. This could be easily controlled because the teachers had a mechanism to control students by giving them scores (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

It was difficult to control the waste banks operated in communities for two reasons. First, people who operated the banks needed to dedicate their personal time to do. Second, local people did not want to bring their waste to the bank only in return for numbers in a book, they preferred receiving cash. When the province operated the project of the funeral provision fund, it could encourage communities to participate in a project (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

At the municipal level, a 10th Regional Environmental Office officer gave his comments on the potential outcomes of the waste-to-energy plant that had just begun to operate in September 2016:

> "It is likely to worth the cost because a private company invested in this plant. They might make profits worth the costs. Moreover, the waste-to-energy electricity generating plant was compatible with the roadmap of the central government. One part of the central government's 2016 roadmap emphasised the waste-to-energy activities, and the government also encouraged the private sector to invest in this affair." (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

8.8 Working Relationship as an Outcome of Collaboration for Waste Management in the Khon Kaen City Municipality

The second aspect of outcomes of Khon Kaen City Municipality waste management collaboration the working relationship outcome. The relationship between the municipality and provincial or regional governmental organisations was a formal relationship because

officers of the regional environmental offices worked with the Khon Kaen City Municipality on waste management as part of their 'core work.' They were civil servants who received orders from the governmental organisation. Moreover, this working relationship was about 'assistance.' A 10th Regional Environmental Office officer explained more about this working relationship:

> "Central government organisations that located in a province (provincial or regional governmental organisations) help the municipality to drive the projects under the central government's regulations. For example, the regional environmental office would monitor that, after the construction of the electricity generating plant was finished, the plant could operate well or not regarding the Ministry's regulations." (Interview with a 10th Regional Environmental Office officer, 13/06/2017)

8.9 Future Tendency and Recommendations for Making Collaboration for Waste Management More Effective

In an interview, a 10th Regional Environmental Office officer said he thought that the Khon Kaen City Municipality electricity plant would be the model for other LAOs because it showed how a LAO could collaborate with a private organisation in applying advanced technology to dispose of waste generated by a LAO, and that local people accepted the project. In addition to this, the Maintenance of the Cleanliness and Orderliness of the Country Act, B.E. 2560, which had just been implemented, unlocked the public-private partnership of a LAO and the private sector. In the past, if a municipality constructed a landfill site or an electricity plant outside the areas of a municipality, the municipality needed to get approval from the central government for operating tasks outside the municipal

area, but the new Act cancelled this condition (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

From the view of a person who worked for a central government organisation located in a province, a 10th Regional Environmental Office officer recommended that a waste management collaboration would be more effective if there was a mechanism to recruit students of related fields from universities in the province; for instance, environmental engineering, environmental science and public health, to work for a waste management collaboration. Additionally, there should be systems or regulations that give budgets to small LAOs so that they could have budgets for transporting their waste for disposal at the place that large LAOs like Khon Kaen City Municipality do. This would support LAOs in waste management collaborate in the form of cluster (Interview with a 10th Regional Environmental Office officer, 13/06/2017).

Conclusion

The Khon Kaen City Municipality is a large LAO that has a waste management problem due to its large population consisting of locals and incoming students from around the country. The waste management collaboration in this municipality involved both the city level and the local government level. At the provincial level, the collaboration was about using simple ways to reduce the potential generation of waste through methods such as encouraging government staff, households and schools to reuse some waste materials. At the municipal level, the collaboration was about using modern technologies to dispose of old waste from the landfill sites and transform new waste into electricity energy.

This collaboration shows the success achieved in managing conflicts between local communities and the LAO on waste management issues. It also shows the good relationship between regional government offices (that are national government agencies) and the municipality. The municipality itself has various capacities to collaborate. Nevertheless, its distinct capacities are staff and communication. Their members of staff are well-educated and experienced and can work with other collaborating organisations or groups effectively. In terms of communication, they use modern technology to make their communication easier and more frequent. They expect their collaboration to be a model for other LAOs and wish to collaborate with them as clusters. The next chapter will discuss the major findings from this research and provide recommendations for LAOs in general to succeed with their waste management collaborations.

CHAPTER 9
CONCLUSION

Introduction

This thesis is a mixed methods research study which aims to understand collaborations for waste management of local administrative organisations in Thailand in four stages: the context of the collaborations, features of the collaborations, collaborative capacities, and outcomes of the collaborations. The main issue that this research emphasises is the collaborative capacities because it aims to close two gaps in the previous literature. First, much of the existing literature on Thai local administrative organisations' collaborations is based on a small population size (n), studying only a few organisations. Thus, there is very little information about these organisations on collaborations across the population.

Second, most of those studies had limitations in terms of research design – i.e. they only used either quantitative or qualitative research methods. The research that relied only on the quantitative methods had its limitations in that the data that was obtained was not rich in details whereas the research that relied only on the qualitative methods had the limitations that its findings could not be generalised. Moreover, this research aims to contribute to the policy and public management on waste management of Thailand because the central government of Thailand has just had national policies to support local administrative organisations in collaborating with other organisations and had further success because its local citizens achieved the zero-waste goal. Both of these were long-term goals and very

important core public policies of the country. Understanding the capacities of Thai local administrative organisations to collaborate must be useful for the government in terms of their future handling of efficient waste management collaborations since the creation of these collaborations.

This chapter brings together the research and covers six issues: the comparative analysis of the empirical data, the recommendations for policy and management, the conclusions from the research questions, the lessons from the fieldwork in Thailand, the limitations of the research and the recommendations for future research.

9.1 Comparative Analysis of Empirical Data

The cross-case analysis is undertaken with reference to the thematic structure used in the individual case studies (Table 9.1). This has four main elements: the context of the collaboration, the features of the collaboration, collaborative capacities and the outcomes of the collaboration. Each of these has a number of sub-elements. The comparative analysis also draws on the survey data where relevant. The cross-case analysis shows that there are some features in common, despite the differences in size and type of local administrative organisations. However, there are also some points of difference. The conclusions from the cross-case analysis are as follows:

9.1.1 Context and Features of Collaboration

First, the case studies show that the major waste management problems were increased waste due to the population change (e.g. increasing population and commuters), lack of public awareness on waste management, and environmental problems caused by the method of waste disposal. Although migration to urban areas took place across Thailand, the migration to the cities of these case studies was significantly higher. The city where the first case study took place is the capital city which is also the main port, and the centre of jobs in the government sector, commerce, construction, manufacture and various other services (Bangkok Metropolitan Administration, 2018). The city of the second case study is the centre of education, public health providers, and tourist attractions of Northern Thailand (interview with Phitsanulok City Municipality 1, 3 July 2017). The city where the final case study took place is one of the major tourist cities of Thailand, the national export centre for trade throughout the Indo-China Region, and the centre of commerce, politics, and education of North-Eastern Thailand (Tourism Authority of Thailand, 2018; interview with 10th Regional Environmental Office Officer 1, 13 June 2017).

In these cities, there was a lack of public awareness on waste management in two out of three cities. For example, some citizens in the first city threw rubbish on roadsides or dropped litter on waterways (interview with a representative of a private company, 27 July 2017; interview with a community leader, 25 May 2017) whereas some of those in the second city avoided to pay the municipal waste collection fee (interview with Phitsanulok City Municipality official, 3 July 2017). Moreover, all of them had experienced environmental problems caused by their waste disposal. The main problem was a foul smell

of waste generated from the landfill sites that existed in all case studies (interview with BMA official 1, 23 May 2017; interview with Phitsanulok City Municipality 1, 3 July 2017; Junphrom, 2015). The second problem was an insect nuisance that impacted the citizens who stayed near the landfill sites of the first and the second case studies (interview with BMA official 1, 23 May 2017; interview with Phitsanulok City Municipality 1). Besides, the third case study showed the problems of polluted agricultural fields and water sources because waste water leaked from the landfill site and a lot of smoke blew over from occasional fires inside the landfill (Janphrom, 2015).

Second, although the creation of a collaboration for waste management was initiated by the local administrative organisations in all cases, this was due to different reasons. The local administrative organisations of the second and the third case studies initiated their collaboration because of the inaptitude of their waste disposal infrastructure. The landfill site of the second case study generated so many insects and released such a bad odour that local citizens could not stay in that area anymore. Thus, the local administrative organisation had to close the site (interview with Phitsanulok City Municipality official, 3 July 2017). The local administrative organisation of the third case study experienced the problem that their landfill site was full, and they could not construct a new landfill site because the local citizens protested against the project (Janphrom, 2015).

There was no problem with the landfill site of the first case study because the local administrative organisation used landfill sites that were located in other provinces. However, that local administrative organisation realised that the landfilling method was not the

appropriate waste disposal method in the long run, because they could not construct a new landfill site in their province. The local citizens would be opposed to the local administrative organisation since they were impacted by insects and bad odour from the site (interview with BMA official 1, 23 May 2017). In addition, the local administrative organisation found that there was a lack of public awareness and knowledge on how to manage waste (Jitasa Foundation, 2016, pp. 2-4; interview with a representative of a private company, 27 July 2017; interview with a community leader, 25 May 2017). Therefore, these local administrative organisations initiated collaborations with other sectors in order to operate better waste disposal methods in their governed areas.

Third, other key organisations involved in the collaborations of the case studies were private organisations and communities or local citizens. Compared to the results of the survey study, 'local citizens' were the key organisation which local administrative organisations throughout Thailand collaborated with at the highest percentage (29.6%) when 'private organisations' was ranked as the 6th (5.7%) out of eight types of collaborative organisation (see Table 5.4 of Chapter 5 on the results of the survey study). Therefore, the three case study organisations are outliers in the overall population of Thai local administrative organisations because they are part of this small percentage that collaborates with private organisations. However, like many local governments, they involve local citizens. Local citizens of all cases were involved in the waste separation process. In the first case study, local citizens collaborated with local administrative organisations in implementing the community-based waste separation project (interview with a community leader, 25 May 2017).

Similarly, local citizens in the second case study collaborated with the local administrative organisation in implementing waste separation at the source in accordance with the concept of the Community-Based Solid Waste Management (CBM). That was, the citizens separated recyclable waste and organic waste from the main waste. After that, the recyclable waste was sold to private companies, the organic waste was composted to make bio-fertilisers, and the rest was disposed of at the Mechanical Biological Waste Treatment (MBT) (interview with Phitsanulok City Municipality official, 3 July 2017). The third case study showed that the local citizens were encouraged by the local administrative organisation to separate waste at its source, to reuse usable materials, and to compost organic waste which was separated from the main waste to make bio-fertilisers. For example, the local administrative organisation runs the 'Pig Feeding' project that encouraged the citizens to separate food waste for composting into liquid fertilisers (Asian Urban Information Centre of Kobe, 2008).

In terms of the involvement of private companies, they played different major roles in different case studies. In the first case study, private companies were 'implementers' since they implemented the waste separation similar to the local citizens (interview with BMA official 1, 23 May 2017). The private companies in the second case study were the 'waste buyers' who bought recyclable waste from local citizens (interview with Phitsanulok City Municipality official, 3 July 2017) whereas those in the third case study were the 'investors' in a waste-to-energy project (Janphrom, 2015).

Next, the structure of a collaboration in all the case studies was composed of three parts: policy making organisations, intermediary organisations, and policy implementation

organisations. For example, in the first case study, the local administrative organisation was the policy making organisation that created the waste separation policy. In addition to this, the district offices under the local administrative organisation were the intermediary organisations. They received the waste separation policy from the local administrative organisation through the bureaucratic chain of command. After that, they selected communities in their governed areas to implement the waste separation policy. The selected communities were educated about the waste separation and were encouraged to implement the waste separation policy by the district office officials. The communities who agreed to voluntarily implement the waste separation policy were the policy implementation organisations (interview with BMA official 1, 23 May 2017). Similar patterns were also found in the second and the third case studies.

A 'Memorandum of Understanding (MOU)' was the form of working agreement that all the collaborations of the case studies used (interview with BMA official 1, 23 May 2017; interview with Phitsanulok City Municipality official, 3 July 2017). For example, the local administrative organisation in the second case study signed an MOU when collaborating with a private company for a waste treatment technology. When this MOU expired, and the local administrative organisation wanted to collaborate with a new private company for implementing a new waste treatment technology, the local administrative organisation would sign an MOU with the new company. The official process for finalising this MOU took several years because it required approval by the central government (Institute for Global Environmental Strategies (IGES), 2017). This example shows the use of an MOU as a working agreement between a local administrative organisation and a single organisation on waste management.

Nonetheless, there is also the use of an MOU as a working agreement between a local administrative organisation and multiple collaborating organisations. For example, the local administrative organisation of the third case study signed an MOU with two academic institutions, one town municipality, and two sub-district (tambon) municipalities on 21 September 2018. This agreement brought together these organisations to collaborate for the 'Smart City' project which included waste management. The MOU was about the exchange of best practices, the facilitation of knowledge transfer, the establishment of a strategic roadmap, the identification of indicators to track the progress of the work, and the collaborative work; for instance, urban mobility, sustainable housing, clean energy, and waste management (Asian Institute of Technology (AIT), 2018).

However, there were also some differences between cases in the management of each collaboration. The third case used a 'legal contract.' The legal contract was a working agreement between the local administrative organisation and a private company in an expensive and long-term project on waste management. That is, the private company was contracted to construct a waste-to-energy power plant for the local administrative organisation. This plant will charge customers 250 baht per metric tonne of waste for the first three years, and the fee will be raised by 10 per cent every three years over the 20-year contract (Bangkok Post, 2018). In addition, the second and the third cases also relied on oral agreements.

Regardless of the use of MOU or legal contracts, informal working relationships also emerged between collaborative organisations in all cases. For example, the first and the

second cases showed informal relationships between intermediary staff and communities (Interview with a community leader, 25 May 2017; Direct observation at a community, 5 July 2017). For example, people in a community seemed to be comfortable and had the courage to share their ideas about a waste management collaborative project with intermediary staff from the local administrative organisation in the third case (Direct observation at a community, 5 July 2017). This relates to the discussion of 'communication capacity' later in this section.

9.1.2 Collaborative Capacities

The case study analysis is investigating administrative and social capacities as presented in the theoretical framework in Chapter 3. The aim of the case study research was to use the topic guide as a way of enabling me to inductively identify the collaborative capacities that the interviewees thought were important in achieving successful collaborations. This will now enable me to establish whether any changes need to be made to the typology developed by Lodge and Wegrich (2004) and Thompson and Perry (2006) which present two types of collaborative capacities: administrative and social capacities.

The cross-case analysis starts by considering the collaborative capacities that the three case studies had in common: financial, communication, and innovation creation capacities. The first common collaborative capacity was the 'financial capacity.' The major source of finance which was a key collaborative capacity was from a local administrative organisation; for instance, the supporting budgets from municipal waste collection fees collected by the local administrative organisations. Moreover, the local administrative organisations were

able to receive the allocation of national funding through the Office of Natural Resources and Environmental Policy and Planning, the Ministry of Natural Resources and Environment, the Department of Local Administration, and the Ministry of Interior. This shows how the central public financed the development of collaborations on waste management of the local governments (see Section 5.5 of Chapter 5 on the national policy context). This central public financing is a form of administrative capacity that comes within the sub-concept of 'delivery capacity' discussed by Lodge and Wegrich (2004) which was mentioned in Chapter 3.

A further common feature of the case studies is that the local administrative organisations achieved a reduced amount of waste in their governed areas as the problem-solving outcomes from their collaborations (Department of Environment, 2014, p. 99; Department of Environmental Quality Promotion in Collaboration with Regional Environment Offices, 2008; interview with 10th Regional Environmental Office Officer 1, 13 June 2017). They also showed a better relationship between the local administrative organisation officials who worked as the intermediary persons with the local communities and the local communities (direct observation at Community 1, 5 July 2017; interview with a community leader, 25 May 2017; interview with Khon Kaen City Municipality official 1, 6 June 2017). This reflects the results of the survey where 75 per cent of respondents agreed or strongly agreed that: "The collaboration for waste management makes the working relationship between our local administrative organisation and other collaborating members good" (see Table 7.26 in Chapter 7 on the results of the survey study).

The second common capacity was the 'communication capacity.' This collaborative capacity is partly about the administrative capacity (the capacity to set up administrative procedures for communication) and partly about the social capacity (the way in which these communication networks can improve interaction between organisations). All cases perceived this capacity as the 'channel' for other collaborative organisations to get in touch with the local administrative organisations. For example, the first case had two channels: the hotline service and communicating through the intermediary staff (interview with BMA official 1, 23 May 2017; interview with District Office official 1, 25 May 2017). The second case had only one channel, which was through frequent meetings between the local administrative organisation and the communities (Poboon, 2008), and the third case had two channels: an on-line chat application and the meetings between the local administrative organisation and all collaborative organisations in the form of the 'committee on solid waste management.' (Interview with 10th Regional Environmental Office Officer1, 13 June 2017).

Nonetheless, the second case was different from the other cases because the local administrative organisation in this case also perceived the communication capacity as the 'technique' of the local administrative organisation to communicate with other collaborative organisations. For example, the second case used the 'dialogue' technique, i.e. inviting all collaborative organisations to have a discussion together without a hierarchy and a leader who will dominate that discussion (interview with Phitsanulok City Municipality official, 3 July 2017). These examples place the concept of communication capacity within Lodge and Wegrich's (2004) concept of coordination capacity, as it involves more of an administrative process than a social one.

The last collaborative capacity that all cases shared was the 'innovation capacity'. The first case perceived it as an 'opportunity' for the collaborative organisations to 'think together and talk together' to find out new ideas for a waste management collaboration (interview with BMA official 1, 23 May 2017) where the second and the third case established a particular space for creating innovations. For example, the second case had a 'community learning centre' to brainstorm with their collaborative organisations to create innovations (interview with Phitsanulok Municipality official 1, 3 July 2017), and the third case had set up an 'official stage' for consulting and exchanging ideas among their collaborative organisations (interview with 10th Regional Office Officer 1, 13 June 2017).

As a result of the case studies, I have identified the innovation capacity as a new sub-type of social capacity. It is not mentioned in the literature review in Chapter 3 although Sullivan, Barnes and Matka (2006) recognise that 'innovation strategy' is something collaborations should aim for. Therefore, this is a type of collaborative capacity I am adding to the literature. Although Lodge and Wegrich (2004) have a related concept of 'delivery capacity', their concept suggests a static view of what collaboration can achieve. In contrast, the innovation capacity is about the potential of collaboration to achieve improvements in delivery and outcomes.

Some collaborative capacities were identified in only one or two of the three cases. The first case study analysis identified the 'knowledge capacity' which was an administrative capacity. It is similar to the idea of 'analytical capacity' discussed by Lodge and Wegrich (2004). This knowledge was the knowledge about waste management technologies that each

collaborative organisation had. For example, the knowledge on ISO technologies that a collaborating private organisation had, was used to educate the local citizens (interview with a representative of a private company, 27 July 2017). The first case study also identified the 'emergencies management capacity' which was a 'policy capacity'. Policy capacity is a new sub-type of administrative capacity which has not been discussed in the literature. I have identified it as a result of the case studies. It is a type of administrative capacity because the creation and implementation of policy requires administrative processes. This policy capacity is important for a successful collaboration because it is necessary for making the 'regulatory capacity' mentioned by Lodge and Wegrich (2004) effective. For example, when there was an emergency that could affect a waste management collaboration (e.g. a flood disaster), a joint committee would have a meeting in order to find out ways for dealing with that situation as soon as possible (interview with BMA official 1, 23 May 2017).

The second case study identified the 'incentive capacity' which was a social capacity. The local administrative organisation incentivised individuals or organisations to increase a public participation in their collaborative projects (Poboon, 2008). It also identified the 'problem report capacity' which was an administrative capacity. It relates to Lodge and Wegrich's (2004) 'delivery capacity' because the problem report capacity will make public organisations improve the public services that they deliver to citizens. For example, the second case showed that local citizens could report any problems they experienced within the waste management collaboration through their communities' leaders when other collaborative organisations and also the local citizens could report problems through the website or the hotline service of the local administrative organisation (Poboon, 2008; interview with Phitsanulok City Municipality official, 3 July 2017).

Finally, it identified the ‘solution finding capacity’ which was also an administrative capacity and relates to Lodge and Wegrich’s (2004) ‘delivery capacity’ because it helps public organisations find the best way to improve their public services before delivering them to their citizens. For example, the second case showed that when the waste management collaboration experienced any problems, they would set up meetings both within the local administrative organisation, and between the local administrative organisation and other collaborative organisations to find solutions (interview with Phitsanulok City Municipality official, 3 July 2017).

There were six collaborative capacities that the case studies’ local administrative organisations had, that were particularly important in assisting them to achieve their collaborations with communities. For example, in the first case study, the respondents mentioned six capacities that assisted them. First, the ‘financial capacity’ which was the capacity that the intermediary staff of the local administrative organisation needed in order to work with the communities. This staff even used their own personal budget in cases where they could not receive financial support from the local administrative organisation (interview with District Office official 1, 25 May 2017). In addition, other collaborative organisations also needed this capacity to work with the communities. For example, a private company provided financial support to their staff in the form of food, drinks, and tools in exchange of collaborating in waste management with the communities (interview with a representative of a private company, 27 July 2017).

The second capacity was the 'staff capacity.' The local administrative organisation organised training for their intermediary staff on how to approach the communities, and how to encourage people in the communities to participate in a waste management collaboration (interview with BMA official 1, 23 May 2017). Thus, the staff capacity in this context means that the staff are well trained for collaborating with the communities. Furthermore, the staff are expected to have good time management skills because working with the communities is additional to their normal job. According to the interview with a district office official, the intermediary staff needed to have good time management skills since they had to undertake their core work at the local administrative organisation as well as their work with the communities (interview with District Office official 1, 25 May 2017).

The next capacity was the 'knowledge capacity.' For example, staff of a collaborative private company used their own knowledge on waste management to educate the communities (interview with a representative of a private company, 27 July 2017). The 'capacity to deal with emergencies' was the fourth capacity that was mentioned by the respondents. For example, the local administrative organisation's staff encouraged people in the communities not to bring their waste to the collection points but to store it within their houses at times of flooding (interview with BMA official 1, 23 May 2017).

The fifth one was the 'boundary spanning capacity' that was defined as a capacity to encourage individuals or organisations to collaborate with the local administrative organisation. For example, the intermediary staff made people in the communities perceive waste management problems as their own problems, not the local administrative

organisation's problems. Moreover, they were the best people to resolve the waste management problems since they caused those problems. This made the communities 'publicly aware' of waste management (interview with District Office official 1, 25 May 2017). The last capacity was the 'equipment capacity.' Because the communities voluntarily collaborated with the waste separation project, they needed the relevant equipment to achieve their goals. For example, waste transportation vehicles, garbage bins, and composting chemicals. This equipment was provided by the local administrative organisation's management (Interview with a District Office official 1, 25 May 2017).

Table 9.1: Comparative Analysis of Case Studies' Data

		Case Study 1	**Case Study 2**	**Case Study 3**
Context of Collaboration	Features of Local Administrative Organisations	Very large special (metropolitan) local administrative organisation, covering all areas of the whole province.	Large general local administrative organisation, covering urban areas of the whole province.	Large general local administrative organisation, covering urban areas of the whole province.
	Waste Management Problems	Increasing waste due to increasing population, improper waste disposal, lack of public awareness and knowledge on waste management among the citizens.	Environmental problems due to waste, reckless commuters, no prototype of effective waste management, lack of public awareness on waste management problems, lack of collaboration between the local administrative organisation and other government organisations.	Increasing waste due to increasing population, limited landfill sites, environmental problems as a result of waste.

Features of Collaboration	Creation of Collaboration	The waste disposal method could not eliminate the continuously increasing waste, and a lack of public awareness and knowledge on waste management stimulated the local administrative organisation to initiate a collaboration with a state enterprise and universities to create a waste separation project that engaged public participation.	The inability of current waste disposal infrastructure to meet the demands stimulated the local administrative organisation to initiate a collaboration with an international organisation to study its municipal waste problems and suggest solutions to those problems.	The vision of being the 'Green City' stimulated the province to create a collaboration between local people educational, private and government sectors including the local administrative organisation. Furthermore, the inability of the current waste disposal infrastructure to meet the demands stimulated the local administrative organisation to initiate a collaboration with the private sector in creating a waste-to-energy plant.
	Organisations Involved in Collaboration	Non-profit state enterprises, universities, private companies, district offices, local schools, communities, markets, shopping malls, hotels and private accommodations.	International organisations, private companies, communities and hotels.	The province, other government organisations, local citizens and private companies.
	Management of Collaboration	Three-part structure: policy making organisations, intermediary organisations and policy implementation organisations. Three forms of working agreement: the chain of command, a Memorandum of Understanding (MOU) and an informal working relationship.	Three-part structure: policy making organisations, intermediary organisations and policy implementation organisations. Three forms of working agreement: a Memorandum of Understanding (MOU), an oral agreement and an informal working relationship.	Three-part structure: policy making organisations, intermediary organisations and policy implementation organisations. Four forms of working agreement: a legal contract, a Memorandum of Understanding (MOU), an oral agreement and an

				informal working relationship.
Collaborative Capacities	Administrative Capacities	Five types of administrative capacities: financial (from the local administrative organisation, a global company, a private company, and an overseas city government), staff, equipment, knowledge and emergencies management capacities.	Six types of administrative capacities: financial (from the local administrative organisation), staff, training, policy, problem reporting and solution finding capacities.	Four types of administrative capacities: financial (from the local administrative organisation and private companies), staff, equipment and training capacities.
	Social Capacities	Four types of social capacities: communication, information sharing, boundary spanning and innovation capacities.	Five types of social capacities: communication, information sharing, incentive, public participation encouragement and innovation capacities.	Two types of social capacities: communication and innovation capacities.
Outcomes	Problem Solving	Reduced waste, higher public awareness, higher public participation, participants were satisfied with a collaboration, and higher public knowledge on waste management.	Reduced waste, reduced waste collection time, reduced expenditure on waste management, higher waste utilisation, and decreased complaint reports about waste management.	Reduced waste, higher public awareness, higher public participation, and electricity produced from waste-to-energy plants.
	Working Relationship	Formal and informal working relationship.	Informal working relationship.	Formal (especially technical assistance) and informal working relationship.
	Benefits of Collaboration	Having prototypes and best practices of collaboration,	A better relationship between municipal	The involvement of the private sector in the public service

		lessons from collaboration, good images of collaborative organisations, emergence of a strong community, and a better relationship between collaborative organisations.	staff and local citizens, and good reputations of collaborative organisations. A win-win situation.	provision as an investor of an expensive project that exceeded the capacity of the local administrative organisation.

9.2 Recommendations for Policy and Management

These recommendations for policy and management are constructed by the thematic analysis of the answers of the survey respondents on how to make collaborations for waste management of Thai local administrative organisations efficient. Since the question is open-ended and not compulsory, the answers that I derived are quite various. However, I draw the recommendations emphasising the collaborative capacities which are the major concepts that my thesis aims to present. To achieve efficient waste management collaborations, Thai local administrative organisations are suggested to develop their collaborative capacities in the following three categories: administrative capacities, social capacities and policy capacities as presented in Table 9.2.

Firstly, the administrative capacity which is the most important in making a collaboration efficient is knowledge. Local administrative organisations are suggested to gain two forms of additional knowledge: knowledge about collaboration, i.e. how to work constructively with other organisations and local citizens, and knowledge about waste management technologies - i.e. knowledge about what kinds of technologies they could use (e.g.

separation of waste at the source, the three R's (Reduce, Reuse and Recycle), Waste-to-Energy (WtE), etc. Local administrative organisations can obtain this knowledge by conducting their own research or learning from other organisations; for example, waste management learning centres, successful waste management collaborations and academic institutions. Strengthening their administrative collaborative capacity with the knowledge of collaboration would assist them in developing their social collaborative capacity which is the skills of working across organisational boundaries and jointly solving wicked problems. Moreover, the knowledge about waste management technologies would make their staff able to educate other organisations and local citizens in reducing their amount of waste which is the wicked problem that led to the creation of waste management collaboration.

The second most important administrative capacity is the financial capacity. Thus, local administrative organisations are suggested to have additional budgets for their waste management collaborations. These additional budgets can come from two major sources: the local administrative organisations themselves and the central government. Expecting additional budgets to be allocated by the central government implies that some Thai local administrative organisations still want to be dependent on the central government after the decentralisation.

Secondly, in terms of the social capacities, the boundary spanning capacity is the most important capacity for Thai local administrative organisations. They are suggested to do the boundary spanning. Boundary spanning is often mentioned in the literature as an important collaborative capacity and so is often discussed in recommendations for improving

collaboration. My case study research shows that it already takes place. It is also mentioned by the respondents to my survey. Only a couple of respondents discussed the characteristics of individuals who are good boundary spanners: e.g. being sincere and able to encourage other individuals to voluntarily participate in collaborations. However, both the case studies and the survey responses show that there are many other things that the respondents think are important for improving waste management collaborations, particularly to do with systems and structures. Thus, my recommendations on boundary spanning focus on these matters because they can be implemented by any Thai local administrative organisation whether or not they have individuals who are skilled as boundary spanners. In other words, my recommendations are about organisational rather than individual level factors. This follows the research design I have used in the thesis which is to concentrate on the organisational unit of analysis.

To do the boundary spanning, local administrative organisations are suggested to 'create' collaborations with other organisations, 'integrate' with other organisations, or 'extend' their networks with other organisations in all related sectors. These actions will help the local administrative organisations extend the areas which are covered by their waste management collaborations and enhance the capacities to manage and dispose waste that can be evaluated by the reduction of the amount of waste and the utilisation of recyclable and reusable materials from waste.

The social capacity that is important next to the boundary spanning capacity is the public participation encouragement capacity. Thai local administrative organisations are suggested

to encourage the public participation in their waste management collaborations. The public participation in waste management collaborations can be encouraged in several ways such as promoting the concept of community-based waste management that requires the involvement of all sectors with the public, presenting potential benefits and innovations of this collaborative waste management to the public, and inviting all sectors to participate in the collaborations. The reason why public participation is needed for achieving efficient waste management collaborations is that organisations from all sectors are the key actors in the functioning of the collaborations, particularly in waste separation at the source to accomplish the zero-waste goal. However, they are not just the workforces of the collaborations but the 'active participants' who have two-way communication with the local administrative organisations, and whose opinions on waste management collaborations are valued by the local administrative organisations.

The capacity that is also important is the public awareness creation capacity. Local administrative organisations are suggested to create public awareness of the importance of waste management collaborations, the need for public participation in these collaborations, and the perception that waste is a useful resource – i.e. it can be transformed to energy, bio-fertilisers, and recyclable and reusable materials. The public awareness is connected to the public participation because public participation is more likely to emerge when all sectors have public awareness in relation to waste management collaborations. It is also relevant to the boundary spanning that has been mentioned earlier since it can make other organisations willing to participate in the collaborations.

My last recommendations for achieving efficient waste management collaborations are on the policy capacity which is the new sub-type of administrative capacity that I identified. That is, Thai local administrative organisations are suggested to have policies to support their collaborations for waste management. The next issue to be discussed is where these policies come from. They come from two sources: the central government and the local administrative organisations themselves. Similar to local administrative organisations expecting additional budgets to be allocated by the central government, the local administrative organisations need policies from the central government to support their collaborations. They seem to be dependent on the central government even when implementing their local schemes.

These local administrative organisations want the central government to enforce the policies to directly support waste management collaborations, and to monitor and evaluate the management and results of these collaborations on a local government level. On the other hand, some local administrative organisations need to have their policies to support waste management collaborations, and to support the management or systems of these collaboration in terms of executive policies and local ordinances. Besides, the local policies to support the management or systems of the waste management can be linked to the recommendations on other capacities that have been made by my case studies and so do the respondents to the survey.

These recommendations are organising activities to create new innovations, and always monitoring and evaluating the results of collaborations. Thai local administrative

organisations are suggested to have collaborative activities to create new innovations for their waste management collaborations. For example, innovations for better resource spending, and innovations that facilitate the work of collaborating organisations. Local administrative organisations should regularly monitor and evaluate all projects of their waste management collaborations, then summarise the results. These results will help them find methods to prevent or resolve problems of the collaborations as well as to plan for the extension of collaborations in the future.

Table 9.2: Recommendations on Collaborative Capacities

Ways of Improving Collaboration		**Survey (Numbers of Respondents)**
Administrative Capacities	1. Have additional knowledge	23
	2. Have policies to support a collaboration	22
	3. Have additional budgets	21
	4. Use new technologies	8
	5. Have additional staff	5
	6. Have additional other resources for a collaboration	5
Social Capacities	1. Do the boundary spanning	32
	2. Encourage the public participation in a collaboration	29
	3. Create public awareness	18

	4. Have activities to create new innovations for a collaboration	16
	5. Have continuous collaborative activities	13
	6. Collective decision making	11
	7. Frequently have meetings between collaborative organisations involved	10
	8.Have strict compliance with the working agreement of a collaboration	10
	9. Have effective communication	6
	10. Have a learning exchange	4
	11. Incentivise collaborative organisations	4
	12. A working agreement should always be updated	3

9.3 Conclusions on the Research Questions

In Table 9.3, I present the findings of the research for each research question set out in Chapter 1. The first question on the existing state of knowledge on Thai local administrative organisations' involvement in collaborations is answered by conducting the literature review. My literature review of studies of collaborations between Thai local administrative organisations and other organisations identified that the highest percentage of the studies (77%) uses the qualitative methods when 21% of them use the mixed methods. Moreover, the literature review identified that the highest percentage of them (23%) discusses how collaboration affects performance/outcomes of public service delivery, the second highest percentage (21%) discusses what collaborative activities of Thai local administrative

organisations are, and 17% of them discuss what is necessary for a successful collaboration and what capacities are needed for a successful Thai local government collaboration.

In addition, the literature review identified that the highest percentage (100%) of these studies has the findings about the scope of collaboration, the second highest percentage (54%) has the findings about success of collaboration when 27% of them have findings about collaborative capacities. It shows that there are not many studies of the collaborative capacities of Thai local administrative organisations. For this reason, I wanted to research collaborative capacities of Thai local administrative organisations, in order to enhance the knowledge of collaborative capacities. Furthermore, the literature review identified that the highest percentage of them (67%) has a limited generalisation as a result of employing the qualitative methods with a small sample size. Only 8% of these studies has no or minor limitations. All of them employ a mixed-method research design. As a result, I employed mixed-methods when conducting my research in order to avoid the limited generalisation of research findings, and to supplement findings of the quantitative study by findings of the qualitative study.

The second research question on the best way to conceptualise, collect and analyse data on Thai local administrative organisations' collaborations for waste management is also answered by conducting the literature review of concepts and theories of collaboration. To begin with, I use the term 'collaboration' as it has a broad meaning of working together to analyse how Thai local administrative organisations realistically work with other organisations. Collaboration has become important for the local government in a number of

ways, but I focus on two important ways. First, collaboration is one of three strategies by Roberts (2000) for resolving wicked problems that require integrated knowledge of stakeholders. Second, collaboration is a result of the Public Value Management paradigm that encourages citizens to participate in public service delivery to deal with challenges and accomplish collective purposes together. There are various forms that collaboration in local government can take but I focus on the forms of collaboration by Sullivan and Skelcher (2002) consisting of networking, partnership, federation and integration to point out particular forms of Thai local administrative organisations' collaborations by analysing relationships between their collaborative organisations and rules of governance of their collaborations.

Furthermore, the literature review identified five main challenges in achieving a successful collaboration. The first challenge is a goal challenge, for instance, objectives of a collaboration that have changed overtime. The second challenge is an inter-organisational challenge, for instance, a lack of accurate data sharing among members of a collaboration. The next challenge is an expertise challenge, for instance, lack of staff members who can manage a collaboration effectively. The fourth challenge is a structural challenge, for example, there is a particular level of government that is appointed to be the key actor in some collaborations. The final challenge is a governance challenge, for instance, changes in government policies. The literature review also identified two types of limitations of collaboration. First, there are operational limitations, for example, trust between members of a collaboration is a precondition for a successful collaboration but it is difficult to create a trusting relationship between members of a collaboration. Second, there are performance limitations. For example, there can be difficulties on how to measure and evaluate the

performance of a collaboration among various members of a collaboration. These concepts are useful in explaining why some local administrative organisations cannot achieve successful collaboration.

However, my research mainly focuses on collaborative capacities of Thai local administrative organisations since there are not many studies about collaborative capacities of Thai local administrative organisations with other organisations. In order to measure collaborative capacities, I applied the concept of Thomson and Perry (2006) that the combination of administrative capacity and social capacity is necessary for achieving collaboration. Then I applied the concept of administrative capacity by Lodge and Wegrich (2004) to measure administrative capacities of Thai local administrative organisations which I called 'organisational capacities,' because I aimed to make them to be understood as collaborative capacities of an organisation. In addition, I applied the concept of strategies to develop collaborative capacities by Sullivan, Barnes and Matka (2006) to measure collaborative capacities in terms of having several strategies for collaboration which I called 'strategic capacities.' Furthermore, my research also focuses on outcomes of collaboration. I selected two types of outcomes of collaboration from Gray's (2000) framework that are perceived in effectiveness and quality of working relationships. In addition, I applied the index of items for measuring content and process outcomes of Klijn, Steijn and Edelenbos (2010) for measuring two types of outcomes of collaboration of Thai local administrative organisations that I called 'problem-solving outcomes' and 'working relationship outcomes.'

The third research question on the existing state of Thai local administrative organisations' collaborations for waste management is answered by conducting the survey and the case studies. First, the case study on the policy context identified that there are three major public policies on waste management that encourage Thai local administrative organisations to collaborate with other organisations for waste management. These policies are National Roadmap on Solid Waste and Hazardous Waste Management B.E. 2557 (A.D. 2014), National Master Plan on Solid Waste Management B.E. 2559-2564 (A.D. 2016-2021), and National Operational Plan, Thailand Zero Waste in Accordance with Objectives of the Pracha Rath for 1 Year B.E. 2559-2560 (A.D. 2016-2017). In addition, local administrative organisations can apply to the Department of Local Administration of Ministry of Interior for national budgets for implementing their waste management programmes.

Second, the survey identified that there are three forms of collaboration that Thai local administrative organisations partake in. The first form is partnership which has formal relationships and written agreements (e.g. Memorandum of Understanding) with collaborating organisations. Large local administrative organisations use this form more than small ones. The second form is networking which has informal and ad hoc relationships of collaborating organisations. Between 30 to 50% of municipalities and SAOs use this form. The last form is integration which has the highest level of collaborating members' commitment. The smallest group of responding local administrative organisations (3.8%) consisting of PAOs, town municipalities and SAOs use this form. Overall, large local administrative organisations have much higher collaborative capacities and outcomes of collaborations than the small ones. Moreover, collaborative capacities are positively associated with outcomes of collaborations. That is, higher collaborative capacities are

related to higher outcomes of collaborations, and higher outcomes of collaborations are also related to higher collaborative capacities.

The fourth research question on how to explain the forms and outcomes of collaborations by Thai local administrative organisations is answered by the analyses of case studies. First, the origin of waste management collaborations of Thai local administrative organisations is due to two major reasons. The first one is the inaptitude of their old waste disposal methods or facilities, and the second one is the executive policy that supports local administrative organisations to collaborate with other organisations for more efficient waste management. Second, the inductive results from the case studies allow me to identify a new sub-type of administrative capacity which is the policy capacity, and the new sub-type of social capacity which is the innovation capacity. Both of them are important in explaining the ability of Thai local administrative organisations to collaborate on waste management.

The final research question on the implications of policy and practice by Thai local administrative organisations and other agencies is answered by the cross-case analysis. As a result, I have three recommendations for the Thai local administrative organisations. First, the knowledge capacity is the most important administrative capacity, and the knowledge of Thai local administrative organisations consists of knowledge about collaboration and knowledge about waste management technologies. Second, the boundary spanning capacity is the most important social capacity. However, this capacity is a capacity on an organisational level rather than on an individual level. The final recommendation is that the policy capacity which is the new collaborative capacity that I have identified as a new sub-

type of the administrative capacity is important for Thai local administrative organisations in achieving successful waste management collaborations. It is about having policies in place from both the central government and the local administrative organisations, in support of these collaborations.

Table 9.3: Conclusions on the Research Questions

Research Questions	Conclusions
1. What is the existing state of knowledge on Thai local administrative organisations' involvement in collaborations?	-Few studies of collaborative capacities. -Limited ability to generalise from qualitative, small research design.
2. What is the best way to conceptualise, collect and analyse data on Thai local administrative organisations' collaborations for waste management?	-Many frameworks and concepts used to study collaboration. -Distinction between administrative and social collaborative capacities provides useful framework. -Analysis of outcomes can use framework based on problem solving and working relationships.
3. What is the existing state of Thai local administrative organisations' collaborations for waste management?	-Three major public policies that encourage Thai local administrative organisations to collaborate. -Three forms of collaboration on waste management of Thai local administrative organisations. -Large local administrative organisations have higher collaborative capacities and outcomes of collaborations than the small ones. -Collaborative capacities are positively associated with outcomes of collaborations.
4. What are the forms and outcomes of collaborations by Thai local administrative organisations?	-Organisational and strategic collaborative capacities. -Problem-solving and working-relationship outcomes of collaborations. -New sub-type of administrative capacity called 'policy capacity' and new sub-type of social capacity called 'innovation capacity.'

5. What are the implications for policy and practice by Thai local administrative organisations and other agencies?	-Knowledge capacity. -Boundary spanning capacity. -Policy capacity.

9.4 Lessons from Fieldwork in Thailand

I undertook fieldwork in Thailand which is my home country. Being a native Thai speaker, I did not have any problem in communicating with respondents, key informants, or other involved people. However, I would like to share some lessons which were new to me and presented unique procedures to collect data from governmental organisations in Thailand. These lessons are on two issues: recruitment and consent of research participants as presented in Table 9.4. Firstly, the recruitment of research participants for the survey and the case studies required me to send official letters requesting research participation to chiefs of each governmental organisation. For instance, mayors of local administrative organisations, ministers of ministries, and director-generals of departments of ministries. After that, these chiefs assigned their officials to answer the questionnaires, have interviews, or give document data on behalf of their organisations.

In general, official letters to request research participation needed to be approved by a chief of an organisation where a researcher was working or studying. In my case, the official letters were approved by the Minister (of education) of the Office of Educational Affairs under the Royal Thai Embassy – i.e. an organisation that is responsible for Thai government scholarship students studying in the United Kingdom, because I am a Thai government scholarship recipient. Moreover, these letters had to be sent to governmental organisations

by post because it would be more formal and present a better attempt of the researcher in requesting the research participation than sending e-mails.

Secondly, valid consents which I obtained from participants in the survey and the case studies were slightly different but based on the same reason: i.e. there was a great reluctance by most Thai government officials to sign forms that were not part of their day-to-day work. Therefore, asking respondents or informants to sign consent forms, which was likely to be seen as impolite behaviour on the part of the researcher, was likely to prevent the questionnaires from being filled in, and prevent the interviews taking place. For this reason, the respondents of the questionnaires were requested to check the box which stated that they agreed to participate in the research at the beginning of the questionnaire without signing a name. In case of the interviews, the informants were asked to give a 'verbal agreement' of their permission to record the interviews or have notes taken of the interviews by the researcher. If this was given, the verbal agreement would be either recorded on voice recorders or noted in the field notes, whichever way the informants preferred.

Although the procedure of recruitment of research participants and obtaining consent from them were quite complicated, they made the research participants feel good about participating in the research. Moreover, these Thai government officials were highly professional in giving me the data. They filled in the questionnaires and sent them back at a good response rate, and they prepared to supply the data that was useful for my research through their interviews. Furthermore, the officials who decided that they didn't want to fill

in the questionnaires or give interviews had contacted me to explain their reasons to not participate instead of just ignoring my requests.

Table 9.4: Lessons from Fieldwork in Thailand

Procedures of Research	Ways to Achieve
1. Recruitment of research participants	Sending official letters requesting research participation to chiefs of governmental organisations.
2. Obtaining consents of research participants	Ask participants to check the box of consent in a questionnaire, or to give verbal agreement in an interview.

9.5 Limitations of the Research

Because my research is mixed methods research consisting of a survey and case studies, I would like to present its limitations in two parts: limitations of the survey and limitations of the case studies as presented in Table 9.5. Firstly, the limitations of the survey that I observed were due to the use of questionnaires. My questionnaire was constructed based on the deductive approach; the questions and the multiple choices of each question were created from concepts and theories of collaboration in public management. I just wanted to make sure that the respondents would understand both the questions and the multiple choices clearly because I did not have an opportunity to explain these details to the respondents

myself. Thus, the length of my questions and multiple choices were quite long because they contained significant content.

As a result, I received feedback from some respondents that they thought that some questions and multiple choices were so long, that they had to spend much time to read and complete the questionnaires. Moreover, as is the limitation with all questionnaires, the answers I obtained were not rich in details for every issue. For example, I could ask the respondents about the levels of each type of collaborative capacities of their local administrative organisations, but I could not ask why they thought it should be on that level because it would make the questionnaire too long and boring. Besides, in terms of the open-ended question of how to make collaborations for waste management of Thai local administrative organisations efficient, this question was not compulsory to be answered, the respondents could write down their recommendations in the blank space that I prepared if they wished to do so. Therefore, the number of respondents who answered this question might not represent the whole sample of the survey, but at least it could present ideas from some respondents who answered these questions on behalf of their organisations.

Secondly, my case studies were conducted to collect the data which supplemented the survey data because the survey data had a generalisability but was not rich in terms of details. Since my research focus was on collaborative capacities, the survey data showed the levels of each type of collaborative capacities, and the case studies data would give more information about collaborative capacities of Thai local administrative organisations in real-life situations, and more insights from the officials who worked for waste management collaborations. The

major research method that I used to collect the case studies data was a semi-structured interview. Because people were more likely to talk about what they knew well and wanted to discuss, the researcher had to start the interview with the issues that the informants would like to talk about. After that, the researcher could probe the questions to get the answers on the issues which were directly related to the research questions. I had found that in each interview, I did not have much time for obtaining all the necessary data containing rich details due to the limited time of each interview. In cases where there still were some points to ask, the informants had to be contacted to obtain more data.

Moreover, the data obtained from the interviews was a combination of the data on the issues that I aimed to collect and the data on other issues. Some of it could be used to supplement the core data but it took time to analyse their relevance before adding them into my thesis. Apart from this, all the selected cases were large local administrative organisations with high collaborative capacities for waste management collaborations. They met my research objective to give recommendations for Thai local administrative organisations in achieving efficient waste management collaborations. However, they could not give detailed data about the collaborative capacities of local administrative organisations on other levels of collaborative capacities.

Table 9.5: Limitations of the Research

Research Designs	Limitations
1. Survey	-Respondents needed much time to complete questionnaires. -Number of answers for an open-ended question of the questionnaire did not represent the whole sample of the survey.
2. Case studies	-Some data from the interviews was not rich enough in details, informants had to be contacted later for collecting more data. -Get a combination of relevant data and other data. -All cases were high collaborative-capacity organisations, so their stories did not represent those organisations with lower collaborative capacities.

9.6 Recommendations for Future Research

I have recommendations for future research on aspects: research technique, research design, and research topic as presented in Table 9.6. Firstly, there were some interesting experiences during the survey study: i.e. some respondents contacted me to give more data to supplement the data that they had already supplied through the questionnaires for various reasons. For example, some questions in the questionnaire were directly relevant to their work, so they thought my research might contribute to the development of waste management of Thai local administrative organisations, and therefore they requested a copy of the research findings to present the insights that they thought useful for other local administrative organisations, etc. Therefore, I recommend that other researchers add personal contact

details in their research participant information sheet so that respondents or informants are able to contact the researcher if they wish to provide more data than is requested in the questionnaire or the interview if they wish to do so. This may increase the opportunity to get more data which may be useful for the research.

Secondly, there are three possible research designs which are able to obtain the findings to supplement the knowledge obtained: an overall research design, a survey design, and a case study design. First, a 'real-time longitudinal study' is recommended as an overall research design since this research studied phenomena from the past, by learning from documents and interviewing individuals about their past experiences. A real-time study will obtain the data in a contrasting way to my study, and its findings can be compared to the findings of this paper.

Next, a 'national-level survey' to identify Thai local administrative organisations that never collaborate for waste management and their levels of collaborative capacities is recommended as a survey design. It is possible that they do not collaborate due to a lack of collaborative capacities. This survey might provide a contrast to the results from my survey. Therefore, its findings can be compared to my survey findings. Third, local administrative organisations that are not in a group of successful waste management collaborations are recommended to be a case study design. These case studies are aimed to present collaborative capacities and other relevant issues of these local administrative organisations. Because my case studies were only based on those who were in a successful group, these findings can be compared to my case studies findings in terms of comparative analyses.

Finally, my research emphasised on the collaborative capacities of local administrative administrations in waste management. The collaborative capacities – i.e. the capacities to collaborate or create a collaboration, are the issues that are important for understanding the early stages of a collaboration. There are also other stages of a collaboration that could be studied in the future. Some possible research topics captured from my thoughts, based on my research data are as follows: how do local administrative organisations manage their waste management collaborations, how do local administrative organisations monitor and evaluate the implementation of their waste management collaborations, and how can results of the evaluation of local administrative organisations' waste management collaboration affect the adjustment of the collaborations.

Table 9.6: Recommendations for Future Research

Aspects	Recommendations
1. Research technique	Mention in the research participant information sheet that respondents/informants could contact the researcher if they want to give more data.
2. Research topic	-How local administrative organisations manage their waste management collaborations. -How local administrative organisations monitor and evaluate the implementation of their waste management collaborations. -How results of the evaluation of local administrative organisations' waste management collaboration can affect the adjustment of the collaborations.

Appendix A: Thai Request for Participation in a Research Project Letter

จดหมายขอความอนุเคราะห์ในการเข้าร่วมการวิจัย

320 ม. 1 ต. ท่าสองคอน

อ. เมือง จ. มหาสารคาม

44000

วันที่.....

เรียน ท่านนายก.....

ดิฉันนางสาวศิรินท์ภทรา สถาพรวงศ์ นักเรียนทุนรัฐบาลไทย กำลังศึกษาระดับปริญญาเอกที่ Institute of Local Government Studies (INLOGOV), University of Birmingham ดิฉันใคร่ขอความอนุเคราะห์จากท่านในการเข้าร่วมการวิจัยเชิงสำรวจ ซึ่งเป็นส่วนหนึ่งของวิทยานิพนธ์ระดับปริญญาเอกของดิฉัน ที่ทำการศึกษาความร่วมมือขององค์กรปกครองส่วนท้องถิ่นไทยและองค์กรอื่นๆในการจัดการขยะ โดยคาดหวังว่าจะมีส่วนช่วยการพัฒนาการจัดการขยะขององค์กรปกครองส่วนท้องถิ่นไทย ถ้าหากองค์กรปกครองส่วนท้องถิ่นของท่านมีความร่วมมือ**ในการจัดการขยะ** ขอความอนุเคราะห์ท่านช่วยตอบแบบสอบถามออนไลน์ตามลิงค์ที่แนบมากับจดหมายฉบับนี้ หรือให้บุคลากรในองค์กรที่เกี่ยวข้องกับงานด้านการจัดการขยะช่วยตอบแบบสอบถามนี้ ข้อมูลที่ได้จากท่านจะได้รับการรักษาความเป็นส่วนตัว ดิฉันหวังเป็นอย่างยิ่งว่า งานวิจัยชิ้นนี้จะมีส่วนช่วยในการพัฒนาศักยภาพในการดำเนินความร่วมมือขององค์กรปกครองส่วนท้องถิ่นของเรา

จึงเรียนมาเพื่อทราบและขอความอนุเคราะห์ในการตอบแบบสอบถาม

ขอแสดงความนับถือ

นางสาวศิรินท์ภทรา สถาพรวงศ์

Appendix B: Request for Participation in a Research Project Letter

320 Moo1 Tarsongkorn Sub-District

Muang District, Mahasarakham Province

44000

Dear Mayor of …….,

REQUEST FOR PARTICIPATION IN A RESEARCH PROJECT

My name is Sirinbhattra Sathabhornwong, a recipient of a Royal Thai government scholarship studying for a PhD at Institute of Local Government Studies, University of Birmingham. I am writing you to request your participation in my survey. This survey is one part of my doctoral research which is studying the way Thai LAOs collaborate with other organisations for Waste Management.

The purpose of my research is to help Thai LAOs improve the way in which they manage waste collection and disposal.

If your organisation has a collaboration with other organisations for **waste management**, would you please kindly follow the link of the on-line questionnaire attached to this mail and then answer it? Alternatively, please forward it to the member of staff responsible for waste management. I can ensure that the data obtained from your organisation will be confidential. Hopefully, the findings from this research will help improve abilities to collaborate of LAOs in our country.

Thank you very much for your time.

Best regards,

Sirinbhattra Sathabhornwong

Appendix C: Thai Online Survey Consent Form

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยสำหรับการวิจัยเชิงสำรวจแบบออนไลน์

เรียน ท่านผู้เข้าร่วมตอบแบบสอบถาม

ท่านกำลังเข้าร่วมการวิจัยเชิงสำรวจแบบออนไลน์ ซึ่งเป็นส่วนหนึ่งของวิทยานิพนธ์ระดับปริญญาเอก ที่ศึกษาความร่วมมือระหว่างองค์กรปกครองส่วนท้องถิ่นของไทยกับองค์กรอื่นๆในการจัดการขยะ งานวิจัยนี้ดำเนินการโดยนางสาวศิรินท์ภทรา สถาพรวงศ์ นักเรียนทุนรัฐบาลไทย นักศึกษาระดับปริญญาเอกที่ Institute of Local Government Studies (INLOGOV), School of Government and Society, University of Birmingham

งานวิจัยนี้มีเป้าหมายในการช่วยเหลือองค์กรปกครองส่วนท้องถิ่นของไทยพัฒนาการจัดการขยะ การเข้าร่วมตอบแบบสอบถามของท่านจะต้องได้รับการอนุญาตจากท่านนายกฯขององค์กรปกครองส่วนท้องถิ่นของท่าน ข้อมูลที่ได้จากท่าน ผู้วิจัยจะรักษาความเป็นส่วนตัวของข้อมูล ในระหว่างทำการวิจัยนี้ ผู้วิจัยจะไม่เปิดเผยข้อมูลจากท่านต่อผู้อื่น รวมไปถึงผู้เข้าร่วมการวิจัยท่านอื่น เมื่อการวิจัยเสร็จสิ้นแล้ว การนำเสนอผลการวิจัยจะไม่เปิดเผยชื่อของผู้ตอบแบบสอบถาม หรือข้อมูลที่นำไปสู่การระบุตัวตนท่านโดยตรง เมื่อท่านส่งแบบสอบถามแล้ว ข้อมูลนั้นจะไม่สามารถถูกถอนจากการวิจัยได้

หากท่านมีคำถามเกี่ยวกับงานวิจัยหรือแบบสอบถาม กรุณาติดต่อ

นางสาวศิรินท์ภทรา สถาพรวงศ์ (นักศึกษาปริญญาเอก/ผู้วิจัย)

หมายเลขโทรศัพท์ [redacted] อีเมล์ [redacted]

หรือ ศาสตราจารย์ Chris Skelcher (อาจารย์ที่ปรึกษา)

หมายเลขโทรศัพท์ +44(0)121 414 4962 อีเมล์ c.k.skelcher@bham.ac.uk

หลังจากท่านได้อ่านข้อความข้างต้นทั้งหมดแล้ว หากท่านยินดีที่จะให้ความอนุเคราะห์ในการตอบแบบสอบถามกรุณากดเลือกช่องสี่เหลี่ยมหน้าข้อความ 'เข้าร่วมการตอบแบบสอบถาม' ระบบจะนำท่านไปยังแบบสอบถาม

☐ เข้าร่วมการตอบแบบสอบถาม

Appendix D: Online Survey Consent Form

Online Survey Consent Form

Dear Sir or Madam,

You are invited to participate in an on-line survey which is a part of a doctoral research project studying the way Thai LAO collaborate with other organisations for waste management conducted by Miss Sirinbhattra Sathabhornwong, a Royal Thai Government scholarship recipient and a doctoral research student at Institute of Local Government Studies, School of Government and Society, University of Birmingham.

The purpose of the survey is to help Thai LAOs improve waste management. I hope you will agree to complete this survey about your LAO. It will take about 10-15 minutes.

The survey asks about the organisation of waste management in your LAO. Your participation in this survey is delegated by your mayor. The data obtained from you will be confidential. During the conduct of the survey, a researcher will not disclose the obtained data to others, not even to other participants of the survey. When the survey is completed, the publication of survey findings will not show your name or any hints that can be traced back to you. Once data is submitted, it will not be possible to withdraw it.

If you have any questions about this survey or the questionnaire, please contact:

Miss Sirinbhattra Sathabhornwong (doctoral research student)

Tel: [redacted] E-mail: [redacted]

or Professor Chris Skelcher (academic supervisor)

Tel: +44(0)121 414 4962 E-mail: c.k.skelcher@bham.ac.uk

After you have read all the information in this page, please check the 'agree' box below if you agree to participate in this on-line survey in your official capacity. The system then will make your way to the questionnaire.

☐Agree

Appendix E: Thai Questionnaire

แบบสอบถามเรื่อง 'ความสัมพันธ์ระหว่างศักยภาพในการร่วมมือขององค์กรปกครองส่วนท้องถิ่นไทย และผลจากความร่วมมือทางด้านการจัดการขยะ'

แบบสอบถามนี้ใช้เวลาประมาณ 15 นาทีในการทำ

ส่วนที่ 1 คำถามในส่วนนี้จะเกี่ยวกับข้อมูลพื้นฐานของการร่วมมือขององค์กรท่านกับองค์กรอื่นในการจัดการขยะ (กรุณากากบาทลงในช่องสี่เหลี่ยมเพื่อเลือกคำตอบที่ตรงกับองค์กรของท่านมากที่สุด)

1. องค์กรของท่านมีการร่วมมือกับองค์กรอื่น (ยกตัวอย่างเช่น องค์กรภาครัฐอื่นๆ, องค์กรภาคเอกชน, องค์กรภาคประชาสังคม (เอ็นจีโอ), สถาบันการศึกษา, ประชาชนในท้องถิ่น ฯลฯ) ในการทำงานร่วมกันเพื่อจัดการขยะภายในพื้นที่ของท่านหรือไม่

☐ ใช่ องค์กรของเราร่วมมือกับองค์กรอื่นในการจัดการขยะ

☐ ไม่ใช่ องค์กรของเราจัดการขยะในพื้นที่โดยลำพัง

2. องค์กรของท่านเป็นองค์กรปกครองส่วนท้องถิ่นประเภทใด

☐ องค์การบริหารส่วนจังหวัด (อบจ.) ☐ เทศบาลนคร ☐ เทศบาลเมือง

☐ เทศบาลตำบล ☐ องค์การบริหารส่วนตำบล (อบต.)

3. องค์กรของท่านได้มีความร่วมมือกับองค์กรอื่นในการทำงานร่วมกันเพื่อการจัดการขยะมาเป็นเวลานานเท่าไหร่

☐ น้อยกว่า 2 ปี

☐ 2 ถึง 4 ปี

☐ 5 ปีขึ้นไป

4.องค์กรอื่นที่องค์กรของท่านได้ร่วมมือด้วยในการทำงานด้านการจัดการขยะคือองค์กรประเภทใดบ้าง (กรุณากากบาทในช่องสี่เหลี่ยมเพื่อเลือกคำตอบที่ดีที่สุดเพียงคำตอบเดียวค่ะ)

☐ องค์กรปกครองส่วนท้องถิ่นเท่านั้น

☐ องค์กรปกครองส่วนท้องถิ่นและองค์กรภาครัฐอื่นๆ (ยกตัวอย่างเช่น กระทรวง, ทบวง, กรม, สำนักงานระดับจังหวัด, สำนักงานระดับอำเภอ เป็นต้น)

☐ องค์กรปกครองส่วนท้องถิ่นและองค์กรภาคเอกชน

☐ องค์กรปกครองส่วนท้องถิ่นและเอ็นจีโอ

☐ องค์กรปกครองส่วนท้องถิ่นและสถาบันการศึกษา (ยกตัวอย่างเช่น โรงเรียน, มหาวิทยาลัย, วิทยาลัยต่างๆ เป็นต้น)

☐ องค์กรปกครองส่วนท้องถิ่นและประชาชนภายในท้องถิ่น

☐ ถูกทุกข้อตามที่กล่าวมาข้างต้น

☐ อื่นๆ (โปรดระบุในพื้นที่เส้นประด้านล่างค่ะ)

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5. ข้อความเหล่านี้ ข้อความใดที่ตรงกับลักษณะความร่วมมือขององค์กรของท่านกับองค์กรอื่นๆในการจัดการขยะมากที่สุด (กรุณากากบาทลงในช่องสี่เหลี่ยมเพื่อเลือกคำตอบที่ดีที่สุดเพียงคำตอบเดียวค่ะ)

☐ ‘องค์กรต่างๆมาร่วมมือกัน**อย่างไม่เป็นทางการ** เป็นการมาร่วมมือกัน**เฉพาะกิจ** เพื่อบรรลุเป้าหมายในการจัดการขยะเท่านั้น’

☐ ‘องค์กรต่างๆมาร่วมมือกัน**อย่างเป็นทางการ** โดยมีข้อตกลงเป็นลายลักษณ์อักษรเกี่ยวกับการให้ความช่วยเหลือด้านทรัพยากรต่างๆ (ยกตัวอย่างเช่น ทีมงาน, เครื่องไม้เครื่องมือต่างๆ, เทคโนโลยี, ความรู้และข้อมูลข่าวสาร เป็นต้น) ซึ่งกันและกัน รวมไปถึงมีการกำหนดกิจกรรมหรืองานต่างๆที่จะมีการดำเนินการร่วมกัน เพื่อการจัดการขยะภายในพื้นที่อย่างมีประสิทธิภาพ’

☐ ‘องค์กรต่างๆที่มาร่วมมือกัน มีข้อตกลงร่วมกันในการมอบอำนาจ เพื่อ**สร้างหน่วยงานขึ้นมาใหม่**ที่จะรับผิดชอบด้านการจัดการขยะโดยเฉพาะ’

6. นอกเหนือไปจากความร่วมมือในการจัดการขยะแล้ว องค์กรของท่านได้มีความร่วมมือกับองค์กรอื่นๆในการจัดการบริการสาธารณะเพื่ อประชาชนภายในพื้นที่หรือไม่ (ท่านสามารถกากบาทเลือกคำตอบได้มากกว่าหนึ่งข้อ)

☐ การศึกษา ☐การสาธารณสุข ☐ ธุรกิจและการลงทุน ☐ สันทนาการ(การพักผ่อนหย่อนใจ)

☐การส่งเสริมศิลปวัฒนธรรม ☐ การท่องเที่ยว ☐ การอนุรักษ์ทรัพยากรธรรมชาติและสิ่งแวดล้อม

☐ อื่นๆ (โปรดระบุข้อความลงในพื้นที่เส้นประค่ะ)

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☐ ไม่มีความร่วมมือในด้านอื่นๆ

<u>ส่วนที่ 2</u> คำถามในส่วนนี้จะถามเกี่ยวกับการดำเนินความร่วมมือในการจัดการขยะขององค์กรของท่าน

(กรุณาทำเครื่องหมาย ✓ ในช่องตัวเลือก เพื่อเลือกคำตอบที่ตรงกับความคิดเห็นของท่าน ว่าเห็นด้วยกับข้อความในแต่ละข้อมากน้อยแค่ไหน)

ข้อที่	ข้อความ	ความคิดเห็น				
		ไม่เห็นด้วยเป็นอย่างยิ่ง	ไม่เห็นด้วย	ปานกลาง	เห็นด้วย	เห็นด้วยเป็นอย่างยิ่ง
1	บุคลากรหรือเจ้าหน้าที่ขององค์กรเราที่มารับผิดชอบการดำเนินงานเกี่ยวกับความร่วมมือด้านการจัดการขยะ ได้รับการคัดเลือกเพราะว่ามีความรู้ความสามารถ และทักษะที่เหมาะสมที่จะมาทำงานนี้					
2	บุคลากรหรือเจ้าหน้าที่ขององค์กรของเราที่มารับผิดชอบการดำเนินความร่วมมือในการจัดการขยะไม่ได้มี ภาระงานที่หนักมากจนเกินไป					
3	องค์กรของเรามีแผนและนโยบายที่ชัดเจนในการดำเนินโครงการต่างๆเกี่ยวกับความร่วมมือด้านการจัดการขยะ					
4	องค์กรของเรามีกฎระเบียบหรือข้อปฏิบัติสำหรับควบคุมการดำเนินโครงการต่างๆที่เกี่ยวกับความร่วมมือด้านการจัดการขยะ					
5	ข้อมูลข่าวสารเกี่ยวกับการดำเนินโครงการต่างๆ ของความร่วมมือด้านการจัดการขยะขององค์กรของเรา มีการเผยแพร่ออกสู่สาธารณชน ประชาชนภายในท้องถิ่นและผู้อื่นที่สนใจสามารถเข้าถึงข้อมูลข่าวสารเหล่านี้ได้					
6	องค์กรของเราสนับสนุนให้พนักงานหรือเจ้าหน้าที่หมั่นติดต่อองค์กรอื่นที่ร่วมมือกันในการจัดการขยะอย่างสม่ำเสมอ					

<u>ส่วนที่ 3</u> คำถามในส่วนนี้จะเป็นคำถามเกี่ยวกับยุทธศาสตร์ในการดำเนินความร่วมมือในการจัดการขยะ

(กรุณาทำเครื่องหมาย ✓ ในช่องตัวเลือก เพื่อเลือกคำตอบที่ตรงกับความคิดเห็นของท่าน ว่าเห็นด้วยกับข้อความในแต่ละข้อมากน้อยแค่ไหน)

ข้อที่	ข้อความ	ความคิดเห็น				
		ไม่เห็นด้วยเป็นอย่างยิ่ง	ไม่เห็นด้วย	ปานกลาง	เห็นด้วย	เห็นด้วยเป็นอย่างยิ่ง
1	องค์กรของเรามียุทธศาสตร์ในการรับมือกับอุปสรรคต่างๆที่เกิดขึ้นได้ ในระหว่างที่มีการดำเนินความร่วมมือในการจัดการขยะ					
2	องค์กรของเราสามารถยืนยันได้ว่าองค์กรต่างๆที่มาร่วมมือกันในการจัดการขยะสามารถรับผิดชอบภาระหน้าที่ตามที่ได้ตกลงกันไว้เป็นอย่างดี					
3	องค์กรของเรามียุทธศาสตร์ในการรับมือกับเหตุการณ์ฉุกเฉินที่อาจเกิดขึ้น ในระหว่างที่มีการดำเนินความร่วมมือในการจัดการขยะ					
4	องค์กรของเรามียุทธศาสตร์ในการสร้างสรรค์วิธีการใหม่ๆที่จะสนับสนุนความร่วมมือในการจัดการขยะให้มีประสิทธิภาพ					

<u>ส่วนที่ 4</u> คำถามนี้ถามเกี่ยวกับผลลัพธ์ที่ได้จากความร่วมมือในการจัดการขยะ

(กรุณาทำเครื่องหมาย ✓ ในช่องตัวเลือก เพื่อเลือกคำตอบที่ตรงกับความคิดเห็นของท่าน ว่าเห็นด้วยกับข้อความในแต่ละข้อมากน้อยแค่ไหน)

ข้อที่	ข้อความ	ความคิดเห็น				
		ไม่เห็นด้วยเป็นอย่างยิ่ง	ไม่เห็นด้วย	ปานกลาง	เห็นด้วย	เห็นด้วยเป็นอย่างยิ่ง
1	เมื่อความร่วมมือในการจัดการขยะต้องประสบกับปัญหา องค์กรของเราและองค์กรอื่นๆที่ทำงานร่วมกัน จะช่วยกันหาทางแก้ไขปัญหา โดยพิจารณาเป็นกรณีๆไป ทำให้ทางแก้ไขปัญหามีความสอดคล้องกับสภาพของปัญหาเป็นอย่างดี					
2	องค์กรต่างๆที่ร่วมมือกับองค์กรของเราในการจัดการขยะ ได้มีการนำแนวทางในการแก้ไขปัญหาที่ได้มีการหารือร่วมกัน มาใช้ในการแก้ไขปัญหาที่เกิดขึ้นระหว่างที่มีการร่วมมือกันในการจัดการขยะ					
3	แนวทางในการแก้ไขปัญหาที่เกิดขึ้นระหว่างมีการดำเนินความร่วมมือในการจัดการขยะ ที่ได้มาจากการหารือร่วมกัน มักจะสามารถแก้ไขปัญหาได้เป็นอย่างดี					
4	แนวทางในการแก้ไขปัญหาที่เกิดขึ้นระหว่างมีการดำเนินความร่วมมือในการจัดการขยะ ที่ได้มาจากการหารือร่วมกัน สามารถที่จะนำมาปรับปรุงเพื่อประยุกต์ใช้ในการแก้ไขปัญหาในแนวเดียวกันที่อาจเกิดขึ้นในอนาคตได้					
5	ประโยชน์ที่ได้จากการดำเนินความร่วมมือในการจัดการขยะคุ้มค่ากับการลงทุน					
6	ในความร่วมมือในการจัดการขยะ องค์กรของเราและองค์กรอื่นๆที่มาร่วมกัน ได้มีการระดมความคิด เพื่อสร้างนวัตรกรรมหรือแนวทางใหม่ๆในการจัดการขยะภายในพื้นที่ของเรา					

<u>ส่วนที่ 5</u> คำถามในส่วนนี้จะถาม เพราะต้องการทราบว่าความร่วมมือในการจัดการขยะส่งผลต่อความสัมพันธ์ระหว่างองค์กรของท่านและองค์กรอื่นๆที่มาร่วมมือกันอย่างไรบ้าง

(กรุณาทำเครื่องหมาย ✓ ในช่องตัวเลือก เพื่อเลือกคำตอบที่ตรงกับความคิดเห็นของท่าน ว่าเห็นด้วยกับข้อความในแต่ละข้อมากน้อยแค่ไหน)

ข้อที่	ข้อความ	ความคิดเห็น				
		ไม่เห็นด้วยเป็นอย่างยิ่ง	ไม่เห็นด้วย	ปานกลาง	เห็นด้วย	เห็นด้วยเป็นอย่างยิ่ง
1	ความร่วมมือในการจัดการขยะทำให้ความสัมพันธ์ในเชิงของการทำงานร่วมกันระหว่างองค์กรของเราและองค์กรอื่นๆที่มาร่วมมือกันดีขึ้น					
2	จากการที่ร่วมมือกับองค์กรอื่นๆในการจัดการขยะพบว่าประสบกับปัญหาเยอะอยู่เหมือนกัน					
3	ถึงแม้จะมีปัญหาเกิดขึ้นระหว่างการร่วมมือกันกับองค์กรอื่นๆในการจัดการขยะ แต่ปัญหาเหล่านี้ก็สามารถที่จะแก้ไขได้ผ่านการปรึกษาหารือเพื่อร่วมมือกันแก้ไขปัญหาในหมู่องค์กรต่างๆที่มาร่วมมือกัน					
4	องค์กรต่างๆที่มาร่วมมือกันกับองค์กรของเราในการจัดการขยะมีการติดต่อหรือมีปฏิสัมพันธ์กันอยู่เสมอๆ เพื่อคอยปรึกษาหารือหรือให้ความช่วยเหลือซึ่งกันและกันในการจัดการขยะ					
5	องค์กรต่างๆที่มาร่วมมือกันกับองค์กรของเราในการจัดการขยะ แสดงออกว่ามีความพึงพอใจต่อแนวทางในการจัดการขยะร่วมกัน					

<u>ส่วนที่ 6</u> ข้อเสนอแนะจากท่านต่อความร่วมมือในการจัดการขยะ

1. ท่านมีข้อเสนอแนะอะไรต่อองค์กรปกครองส่วนท้องถิ่นของไทยที่ไม่เคยร่วมมือกับองค์กรอื่นๆในการจัดการขยะมาก่อน แต่ต้องการที่จะเริ่มความร่วมมือกับองค์กรอื่นๆในการจัดการขยะ (กรุณาเขียนคำตอบของท่านลงในช่องว่างสี่เหลี่ยมด้านล่างนี้ค่ะ)

2. ท่านมีข้อเสนอแนะอะไรต่อองค์กรปกครองส่วนท้องถิ่นของไทยที่มีความร่วมมือกับองค์กรอื่นๆในการจัดการขยะภายในพื้นที่อยู่แล้ว แต่ต้องการให้การจัดการขยะมีประสิทธิภาพมากยิ่งขึ้น (กรุณาเขียนคำตอบของท่านลงในช่องว่างสี่เหลี่ยมด้านล่างนี้ค่ะ)

ขอบคุณที่ท่านสละเวลาของท่านในการทำแบบสอบถามนี้ค่ะ

.....

Appendix F: Questionnaire

Questionnaire

This questionnaire will take around 15 minutes to complete.

SECTION 1 This section will ask you the questions about background information of your LAO's **waste management** collaboration.

(Please select your choice)

1. Does your organisation have a waste management collaboration with other organisations

(e.g. governmental organisations, private sector organisations, NGOs, academic institutes, local citizens, etc.)?

(If a respondent selects 'Yes,' a respondent will go to the next question. If a respondent selects 'No,' a questionnaire will stop here. These conditions are coded via the on-line survey system.

However, in case that questionnaires are sent to respondents by post, they will be clearly informed that they do not need to complete the rest of the questionnaire if they select 'No.' This is due to the fact that the questionnaire will specifically ask about waste management collaboration.)

☐Yes Our organisation collaborate with other organisations for waste management.

☐No Our organisation do waste management individually.

2. What is your type of LAO?

☐ Provincial Administrative Organisation (PAO)

☐ City Municipality

☐ Town Municipality

☐ Tambon Municipality

☐ Sub-Distruct (Tambon) Administrative Organisation (SAO)

3. How long has your organisation had a waste management collaboration with other organisations?

☐ Less than 2 years ☐ 2 - 4 years ☐ 5 or more years

4. What organisations are members of waste management collaboration that your organisation participates in? (Please select only one choice.)

☐LAOs only

☐LAOs and central government agencies (e.g. ministries, departments, provinces, districts, etc.)

☐LAOs and private sector organisations

☐LAOs and NGOs

☐LAOs and academic institutes

☐LAOs and local citizens

☐Every choice above is correct

☐Other (Please indicate) ……...

5. Which statement best describes the form of your waste management collaboration? (Please select only one choice.)

☐ 'There are only informal and ad hoc relationships between the participating organisations.'

☐ 'The participating organisations have a written agreement to share resources (e.g. staff, facilities and information) and undertake joint activities.'

☐ 'The participating organisations agree to devolve some of their autonomy to create a separate organisation for waste management.'

6. Apart of waste management, does your organisation collaborate with other organisations in any of these public services? (You can select more than one choice.)

☐Education ☐Healthcare ☐Local investment ☐Recreation

☐Cultural promotion ☐Tourism ☐Environmental conservation

☐Other (please indicate) ……

☐No other collaborations

SECTION 2 This section will ask you the questions about the ways your organisation manage your waste management collaboration.

(Please select the choice that best indicates the extent to which you agree or disagree with the following statements)

No.	Statements	Extent of Agreement				
		Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1.	'Staff of our organisation is appointed to work for our waste management collaboration based on their knowledge and skills of waste management collaboration.'					
2.	'Our waste management collaboration does not generate a lot of extra work for staff.'					
3.	'Our organisation has clear plans and strategies before implementing any waste management collaborative projects.'					
4.	'Our organisation has enough regulations to control the implementation of waste management collaborative projects.'					

5.	'Information on waste management collaboration is publicly available.'					
6.	'Our organisation encourages staff to frequently contact the other organisations in our waste management collaboration.'					

SECTION 3 Now there are some questions about strategies to manage your waste management collaboration.

(Please select the choice that best indicates the extent to which you agree or disagree with the following statements)

No.	**Statements**	**Extent of Agreement**				
		Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1.	'Our organisation has strategies for dealing with obstacles that emerge during our waste management collaboration.'					
2.	'Our organisation can ensure that members of the waste management collaboration undertake the tasks they are responsible for.'					

3.	'Our organisation has strategies to deal with emergency problems during waste management collaboration.'					
4.	'Our organisation has strategies to create new ways to support waste management collaboration.'					

SECTION 4 These questions ask about the outcomes of your waste management collaboration.

(Please select the choice that best indicates the extent to which you agree or disagree with the following statements)

No.	**Statements**	**Extent of Agreement**				
		Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1.	'When our waste management collaboration develops solutions to waste management problems, it does so on a case-by-case basis.'					
2.	'Members of waste management collaborations apply these solutions to their waste management problems.'					

3.	‘The solution our waste management collaboration develops to waste management problems usually solve those problems.’					
4.	‘The solution our waste management collaboration develops to waste management problems can also be applied to future problems.’					
5.	‘The benefits from our waste management collaboration are worth the costs.’					
6.	‘Innovative ideas on waste management are developed in our waste management collaboration.’					

SECTION 5 These questions ask how your waste management collaboration has affected the relationships between the organisations.

(Please select the choice that best indicates the extent to which you agree or disagree with the following statements)

No.	Statements	Extent of Agreement				
		Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1.	'Our waste management collaboration has improved the working relationships among the members of the collaboration.'					
2.	'Many problems emerge within our waste management collaboration.'					
3.	'Problems that emerge within our waste management collaboration are resolved by the members of the collaboration.'					
4.	'Members of our waste management collaboration are frequently in contact with each other.'					

5.	'Members of our waste management collaboration are satisfied with the shared solutions to waste management problems that are the product of the collaboration.'					

SECTION 6 Recommendation

1. Do you have any recommendations about how LAOs could use collaboration to improve waste management? (Please type your recommendations in the box below.)

2. Do you have any recommendations about how LAOs could improve their collaboration on waste management? (Please type your recommendations in the box below.)

Thank you very much for your time.

Appendix G: Thai Interview Respondent Information Sheet

เอกสารแจ้งข้อมูลสำหรับผู้ให้สัมภาษณ์

ขอความอนุเคราะห์ท่านเข้าร่วมงานวิจัยของนักศึกษาระดับปริญญาเอก ที่มุ่งศึกษาความสัมพันธ์ระหว่างศักยภาพในการดำเนินความร่วมมือขององค์กรปกครองส่วนท้องถิ่น และผลที่ได้จากความร่วมมือเหล่านั้น งานวิจัยนี้ประกอบไปด้วยการวิจัยเชิงสำรวจและกรณีศึกษา การสัมภาษณ์ที่ท่านเข้าร่วมเป็นส่วนหนึ่งของกรณีศึกษา ในส่วนนี้ดิฉันประสงค์จะเรียนรู้จากองค์กรปกครองส่วนท้องถิ่นของไทยที่ประสบความสำเร็จสูงในการดำเนินความร่วมมือในการจัดการขยะ งานวิจัยนี้อยู่ภายใต้ความดูแลของนางสาวศิรินท์ภทรา สถาพรวงศ์ นักศึกษาปริญญาเอกที่ Institute of Local Government Studies (INLOGOV) ซึ่งเป็นนักเรียนทุนรัฐบาลไทย ดิฉันมุ่งหวังให้งานวิจัยนี้เป็นประโยชน์ในการพัฒนาการปกครองท้องถิ่นในประเทศไทย งานวิจัยนี้ได้รับงบประมาณสนับสนุนจาก School of Government and Society, University of Birmingham

ขอแจ้งให้ทราบว่า:

- ท่านจะเข้าร่วมการวิจัยนี้ โดยให้สัมภาษณ์ในฐานะตัวแทนขององค์กร
- การสัมภาษณ์นี้ใช้เวลาประมาณ 60 นาที
- ท่านจะได้รับการขออนุญาตบันทึก (เสียง) การสัมภาษณ์จากผู้วิจัย ถ้าหากท่านอนุญาต ข้อมูลที่ได้จะมีการปิดผนึก และข้อมูลนี้จะถูกทำลายภายหลังผู้วิจัยทำงานวิจัยชิ้นนี้เสร็จสิ้นไปแล้วเป็นเวลา 10 ปี ตามระเบียบวิธีปฏิบัติว่าด้วยการวิจัยของ University of Birmingham ในกรณีที่ท่านไม่อนุญาตให้บันทึกเสียง ผู้วิจัยจะขออนุญาตท่านจดบันทึกการสัมภาษณ์แทน
- ท่านสามารถแจ้งให้ผู้วิจัยส่งบันทึกการสัมภาษณ์ให้ท่านดูได้ และท่านสามารถช่วยแก้ไขบันทึกนี้ได้หากเห็นข้อผิดพลาด
- ข้อมูลที่ได้จากการสัมภาษณ์จะถูกนำไปใช้ในวิทยานิพนธ์ปริญญาเอกและการตีพิมพ์ผลงานทางวิชาการของผู้วิจัย โดยที่ไม่ระบุชื่อของผู้ให้สัมภาษณ์
- ท่านสามารถขอหยุดการให้สัมภาษณ์ได้ทุกเมื่อ และท่านสามารถขอไม่ให้ผู้วิจัยนำข้อมูลที่ได้จากการสัมภาษณ์นี้ไปใช้
- ท่านสามารถถอนตัวจากการเข้าร่วมการวิจัยนี้ได้ ภายในระยะเวลา 6 เดือนนับตั้งแต่วันที่เข้าร่วม โดยที่ไม่ต้องแจ้งเหตุผล ถ้าหากท่านถอนตัว ข้อมูลที่ได้จากท่านจะถูกนำออกจากงานวิจัย และทำลายทิ้ง

ถ้าหากท่านมีคำถามหรือประเด็นที่กังวลเกี่ยวกับการสัมภาษณ์นี้ กรุณาติดต่อ

นางสาวศิรินท์ภทรา สถาพรวงศ์ (นักศึกษาปริญญาเอก/ผู้วิจัย)

หมายเลขโทรศัพท์ [redacted] อีเมล์ [redacted]

หรือ ศาสตราจารย์ Chris Skelcher (อาจารย์ที่ปรึกษา)

หมายเลขโทรศัพท์ +44(0)121 414 4962 อีเมล์ c.k.skelcher@bham.ac.uk

Appendix H: Interview Respondent Information Sheet

Interview Respondent Information Sheet

We would like you to participate in a doctoral student's research project that aims to study relationships between abilities to collaborate of LAOs and outcomes of their collaboration for waste management. This project consists of the survey and the case studies. Your interview is a crucial part of the case studies. In this part, we would like to learn from the Thai LAOs that are very successful in waste management collaboration. The project is directed by Miss Sirinbhattra Sathabhornwong, a doctoral research student at Institute of Local Government Studies (INLOGOV), and a recipient of a Royal Thai government's scholarship. She would like to make this project contributes to development of local government in Thailand. The project is funded by the School of Government and Society, University of Birmingham.

Please note that:

- You will participate in this research by being interviewed in your official capacity.
- This interview will take around 60 minutes to complete.
- You will be asked whether you allow the researcher to record the interview. If you allow, it will be kept in an encrypted form, and will be deleted after the researcher has finished the research for 10 years due to the University of Birmingham's Code of Research. If you prefer not to be recorded, the researcher then will ask to take notes during the interview instead;
- You can request the researcher to send you the interview notes to you. You can also correct any factual errors in these notes;
- The information from the interview will be used by the researcher in her PhD thesis and academic publications without any identification of the respondents;
- You can stop the interview at any time you want. Moreover, you can request the researcher not to use the information you have provided during the interview.
- You are free to withdraw from the study within 6 months after participation without giving any reason. If you withdraw, your data will be removed from the study and will be destroyed.

If you have further questions or concerns about this interview, please contact:

Miss Sirinbhattra Sathabhornwong (doctoral research student)

Tel: [redacted] E-mail: [redacted]

or Professor Chris Skelcher (academic supervisor)

Tel: +44(0)121 414 4962 E-mail: c.k.skelcher@bham.ac.uk

Appendix I: Thai Interview Respondent Consent Form

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยสำหรับการสัมภาษณ์

ผู้ให้สัมภาษณ์ที่ทำงานให้หน่วยงานของรัฐ อาจได้รับความลำบากใจที่จะต้องเซ็นชื่อในหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย ด้วยเหตุนี้ข้อมูลทางด้านล่างนี้ จะถูกนำเสนอโดยการพูด ณ จุดเริ่มต้นของการสัมภาษณ์ และผู้ให้สัมภาษณ์จะได้รับการขอร้องให้แสดงเจตนายินยอมผ่านคำพูด

การแสดงเจตนายินยอมเข้าร่วมการวิจัยผ่านคำพูดจะถูกบันทึกเสียง หรือจดบันทึกใส่สมุดบันทึกข้อมูลภาคสนามของผู้วิจัยในกรณีที่ผู้ให้สัมภาษณ์ไม่สะดวกที่จะแสดงเจตนายินยอมผ่านคำพูด

"ขอบพระคุณที่ท่านยินยอมให้สัมภาษณ์ในฐานะตัวแทนองค์กร เพื่อนำไปใช้ในงานวิจัยของดิฉัน

การสัมภาษณ์นี้จะใช้เวลาประมาณ 60 นาที

ข้อมูลที่ได้จากการสัมภาษณ์นี้จะถูกนำไปใช้ในวิทยานิพนธ์ปริญญาเอกและการตีพิมพ์ผลงานทางวิชาการของดิฉัน โดยที่จะไม่ระบุชื่อของผู้ที่ให้สัมภาษณ์

ดิฉันเป็นผู้เดียวที่เข้าถึงบันทึกการสัมภาษณ์นี้ ถ้าหากท่านต้องการดูบันทึกนี้ ท่านสามารถขอดูจากดิฉันได้ และหากมีข้อผิดพลาด ท่านสามารถช่วยแก้ไขได้

ท่านสามารถขอหยุดการสัมภาษณ์ได้ทุกเมื่อ และสามารถขอไม่ให้ดิฉันใช้ข้อมูลจากท่านได้

ท่านสามารถขอถอนตัวจากการเข้าร่วมงานวิจัยนี้ได้ภายใน 6 เดือนนับตั้งแต่วันที่เข้าร่วม โดยไม่ต้องแจ้งเหตุผล ถ้าหากท่านขอถอนตัว ข้อมูลที่ได้จากท่านจะถูกนำออกจากการวิจัยและทำลายทิ้ง

ดิฉันขออนุญาตบันทึก (เสียง) การสัมภาษณ์ได้หรือไม่ บันทึกนี้ดิฉันจะเป็นผู้ใช้ (ตามที่กล่าวไปข้างต้น) บันทึกนี้จะถูกปิดผนึก และจะถูกทำลายทิ้งภายหลังจากดิฉันทำงานวิจัยนี้เสร็จสิ้นไปแล้วเป็นเวลาสิบปี ตามระเบียบปฏิบัติทางการวิจัยของ University of Birmingham"

ในกรณีที่ผู้ให้สัมภาษณ์ไม่ยอมให้บันทึก (เสียง) การสัมภาษณ์

"ดิฉันขออนุญาตจดบันทึกระหว่างการสัมภาษณ์ได้หรือไม่"

ผู้วิจัยอนุมานว่าอย่างน้อยการขอจดบันทึกการสัมภาษณ์จะได้รับการอนุญาต

Appendix J: Interview Respondent Consent Form

Interview Respondent Consent

Respondents in Thai government are reluctant to sign consent forms, and so the following information will be provided verbally at the start of the interview and the respondent's verbal consent is requested.

Verbal consent will be recorded or – in the event the respondent does not wish to be recorded – noted in the researcher's field notes.

> 'Thank you for agreeing to be interviewed in your official capacity as part of my research project.
>
> This interview will take around 60 minutes to complete.
>
> I will be using the information from my interviews in my PhD thesis and academic publications, but I will not be identifying any of the people I interview.
>
> I am the only person who will have access to the interview notes. If you would like to see my notes of this interview, I can send them to you, and you can correct any factual errors.
>
> You can stop the interview at any time and request that I do not use the information you have provided.
>
> You are free to withdraw from the study within 6 months after participation without giving any reason. If you withdraw, your data will be removed from the study and will be destroyed.
>
> Can I have your permission to record the interview? This will be for my own use, I will keep it in an encrypted form and it will be deleted once I have completed my research for ten years due to the University of Birmingham's Code of Practice for Research.'

If consent to record is not given, then:

> 'Can I take notes during the interview?'

It is assumed this request will be granted.

Appendix K: Thai Topic Guide

ร่างคำถามที่ใช้ในการสัมภาษณ์

ชื่อผู้ให้สัมภาษณ์...

ชื่อองค์กร...

วันที่... เวลา...

คำถามสำหรับองค์กรปกครองส่วนท้องถิ่น

<u>เพราะเหตุใดความร่วมมือในการจัดการขยะจึงเกิดขึ้น</u>

1. ความร่วมมือในการจัดการขยะของท่านเริ่มขึ้นเมื่อใด
2. ปัญหาในการจัดการขยะของพื้นที่ท่าน ที่ต้องการได้รับการแก้ไขคืออะไรบ้าง
3. องค์กรหรือบุคคลใดมีความสำคัญในการเริ่มต้นความร่วมมือนี้
และองค์กรหรือบุคคลใดมีความสำคัญที่สุด
4. ปัจจัยอะไรบ้างที่สำคัญในการกระตุ้นให้เกิดความร่วมมือนี้ขึ้น (ยกตัวอย่างเช่น นโยบายรัฐบาล, ปัญหาสุขภาพ (อันเนื่องมาจากขยะ), การเปลี่ยนแปลงภาวะผู้นำทางการเมืองหรือการบริหารจัดการของการปกครองท้องถิ่น ฯลฯ)

<u>ความร่วมมือในการจัดการขยะดำเนินการอะไรบ้าง</u>

1. ขอบเขตของ ‘การจัดการขยะ’ ของความร่วมมือในการจัดการขยะของท่านคืออะไร
ครอบคลุมกิจกรรมอะไรบ้าง
2. มีองค์กรใดบ้างที่เป็นสมาชิกของความร่วมมือในการจัดการขยะนี้
3. มีการจัดตั้งศูนย์เฉพาะเพื่อดำเนินการจัดการขยะหรือไม่
ถ้ามี กรุณาอธิบายลักษณะของศูนย์นั้น
    -สมาชิกใดของความร่วมมือบริหารจัดการศูนย์นั้น

-งานของศูนย์นี้มีอะไรบ้าง

(หมายเหตุ: แนวคิดเรื่องศูนย์เฉพาะทางเกี่ยวข้องกับนโยบายรัฐบาลในการจัดคลัสเตอร์ขององค์กรปกครองส่วนท้องถิ่นในการจัดการขยะ

<u>ความร่วมมือในการจัดการขยะมีการบริหารจัดการอย่างไร</u>

1. โครงสร้างในการจัดการความร่วมมือในการจัดการขยะเป็นแบบไหน ยกตัวอย่างเช่น

-มีคณะกรรมการหรือผู้บริหารหรือไม่ ถ้ามี คนเหล่านี้มาจากไหน

-คณะกรรมการหรือผู้บริหารนี้พบปะกันบ่อยแค่ไหน

-มีระดับของการบริหารจัดการหรือไม่ ถ้ามี, สมาชิกของแต่ละระดับมีหน้าที่ความรับผิดชอบอย่างไรบ้าง

2. มีการทำสัญญาหรือเอ็มโอยูของความร่วมมือในการจัดการขยะหรือไม่ ถ้ามี สัญญาหรือเอ็มโอยูครอบคลุมในประเด็นใดบ้าง

3. การจัดการทางการเงินของความร่วมมือในการจัดการขยะเป็นอย่างไรบ้าง

4. ท่านอธิบาย ‘ความสัมพันธ์ในการทำงาน’ ของสมาชิกของความร่วมมือในการจัดการขยะว่าอย่างไร ยกตัวอย่างเช่น

-สมาชิกมีวิธีการติดต่อกันอย่างไร (เป็นทางการหรือไม่เป็นทางการ)

และเป้าหมายในการติดต่อกันคืออะไรบ้าง

5. ท่านทำอย่างไรเมื่อเกิดเหตุฉุกเฉินขึ้น มียุทธวิธีรองรับเหตุฉุกเฉินหรืออุปสรรคอื่นๆของความร่วมมืออย่างไร

6. ข้อมูลของความร่วมมือถูกโปรโมทต่อสาธารณะอย่างไร

<u>ความร่วมมือในการจัดการขยะมีพัฒนาการอย่างไร</u>

1. ความร่วมมือในการจัดการขยะมีการเปลี่ยนแปลงอะไรบ้างนับจากเมื่อความร่วมมือเกิดขึ้น (ยกตัวอย่างเช่น การมีส่วนร่วมของประชาชน, การทำสัญญาว่าจ้าง, การร่วมทุน ฯลฯ)

2. มีข้อบังคับหรือนโยบายที่ควบคุมการเปลี่ยนแปลงเหล่านี้หรือไม่

3. ในการเปลี่ยนแปลงแต่ละขั้นมีกระบวนการอย่างไรบ้าง

<u>ประโยชน์ของความร่วมมือในการจัดการขยะ</u>

1. ประโยชน์หลักของความร่วมมือในการจัดการขยะมีอะไรบ้าง

2. องค์กรของท่านต้องดำเนินการอย่างไรบ้างเพื่อให้ได้มาซึ่งประโยชน์เหล่านี้ (ยกตัวอย่างเช่น

จัดอบรมองค์กรของชุมชน, ปรับปรุงการแชร์ข้อมูล, ปรับปรุงช่องทางปัญหาการจัดการขยะของประชาชน, ลงทุนกับเครื่องมือใหม่ๆ ฯลฯ)
3. ท่านคิดว่ามีปัจจัยอะไรบ้างที่ช่วยสร้างประโยชน์จากความร่วมมือในการจัดการขยะให้เพิ่มขึ้น (ยกตัวอย่างเช่น บุคลากรที่เพิ่มขึ้น, การอบรมที่ดีขึ้นและอาศัยผู้เชี่ยวชาญมากขึ้น, งบประมาณจากรัฐที่เพิ่มขึ้น, ข้อมูลสารสนเทศที่ดีขึ้น ฯลฯ)

<u>การจัดการบุคลากรของความร่วมมือในการจัดการขยะ</u>

1. องค์กรของท่านมีการคัดเลือกบุคลากรที่จะมาทำงานให้ความร่วมมือในการจัดการขยะอย่างไร
2. บุคลากรเหล่านี้ต้องทำงานให้ความร่วมมือในการจัดการขยะเป็นภาระงานหลักหรืองานพิเศษ
3. องค์กรของท่านมีการจ้างที่ปรึกษาหรือผู้เชี่ยวชาญจากภายนอกหรือไม่ ถ้ามี มีกระบวนการคัดเลือกอย่างไรบ้าง

<u>ทรัพยากรสำหรับความร่วมมือในการจัดการขยะ</u>

1. มีเทคโนโลยีสารสนเทศอะไรบ้างที่ถูกนำมาใช้ในความร่วมมือในการจัดการขยะของท่าน
2. องค์กรของท่านมีวิธีการอย่างไรเพื่อให้ได้มาซึ่งความช่วยเหลือทางเทคโนโลยีจากต่างองค์กร เพื่อความร่วมมือในการจัดการขยะ
3. ท่านมองว่าองค์กรของท่านมีภาวะผู้นำอย่างไรในความร่วมมือในการจัดการขยะ
4. องค์กรของท่านทำอย่างไรในการสร้างความตะหนักถึงความสำคัญของความร่วมมือในการจัดการขยะภายในท้องถิ่น
5. องค์กรของท่านมีวิธีการอย่างไรบ้างในการเชื่อมโยงสมาชิกของความร่วมมือในการจัดการขยะเข้าด้วยกัน

<u>อนาคต</u>

1. แผนการสำหรับความร่วมมือในการจัดการขยะในอนาคตเป็นอย่างไรบ้าง
2. ความร่วมมือในการจัดการขยะมีวิธีการใดบ้างในการผลักดันให้สมาชิกสร้างสรรค์ไอเดียใหม่ๆ หรือนวัตกรรมเพื่อการจัดการขยะในอนาคต

คำถามสำหรับชุมชนท้องถิ่น

เพราะเหตุใดความร่วมมือในการจัดการขยะจึงเกิดขึ้น

1. ชุมชนของท่านได้เข้าร่วมในความร่วมมือในการจัดการขยะตั้งแต่เมื่อไหร่
2. ปัญหาในการจัดการขยะของพื้นที่ท่าน ที่ต้องการได้รับการแก้ไขคืออะไรบ้าง
3. องค์กรหรือบุคคลใดมีความสำคัญในการเริ่มต้นความร่วมมือนี้
และองค์กรหรือบุคคลใดมีความสำคัญที่สุด
4. ปัจจัยอะไรบ้างที่สำคัญในการกระตุ้นให้เกิดความร่วมมือนี้ขึ้น (ยกตัวอย่างเช่น นโยบายรัฐบาล, ปัญหาสุขภาพ (อันเนื่องมาจากขยะ), การเปลี่ยนแปลงภาวะผู้นำทางการเมืองหรือการบริหารจัดการของการปกครองท้องถิ่น ฯลฯ)

ความร่วมมือในการจัดการขยะดำเนินการอะไรบ้าง

1. ขอบเขตของ ‘การจัดการขยะ’ ของความร่วมมือในการจัดการขยะของท่านคืออะไร
ครอบคลุมกิจกรรมอะไรบ้าง
2. มีการจัดตั้งศูนย์เฉพาะเพื่อดำเนินการจัดการขยะหรือไม่
ถ้ามี กรุณาอธิบายลักษณะของศูนย์นั้น
    -สมาชิกใดของความร่วมมือบริหารจัดการศูนย์นั้น
    -งานของศูนย์นี้มีอะไรบ้าง

(หมายเหตุ: แนวคิดเรื่องศูนย์เฉพาะทางเกี่ยวข้องกับนโยบายรัฐบาลในการจัดคลัสเตอร์ขององค์กรปกครองส่วนท้องถิ่นในการจัดการขยะ

ความร่วมมือในการจัดการขยะมีการบริหารจัดการอย่างไร

1. โครงสร้างในการจัดการความร่วมมือในการจัดการขยะเป็นแบบไหน ยกตัวอย่างเช่น
    -มีคณะกรรมการหรือผู้บริหารหรือไม่ ถ้ามี คนเหล่านี้มาจากไหน
    -คณะกรรมการหรือผู้บริหารนี้พบปะกันบ่อยแค่ไหน
    -มีระดับของการบริหารจัดการหรือไม่ ถ้ามี, สมาชิกของแต่ละระดับมีหน้าที่ความรับผิดชอบอย่างไรบ้าง
2. ชุมชนของท่านมีภาระหน้าที่อะไรบ้างในความร่วมมือในการจัดการขยะ
3. การจัดการทางการเงินของความร่วมมือในการจัดการขยะเป็นอย่างไรบ้าง
4. ท่านอธิบาย ‘ความสัมพันธ์ในการทำงาน’ ของสมาชิกของความร่วมมือในการจัดการขยะว่าอย่างไร

ยกตัวอย่างเช่น

-สมาชิกมีวิธีการติดต่อกันอย่างไร (เป็นทางการหรือไม่เป็นทางการ) และเป้าหมายในการติดต่อกันคืออะไรบ้าง

-ชุมชนของท่านมีทัศนคติต่อองค์กรปกครองส่วนท้องถิ่น และสมาชิกอื่นๆของความร่วมมือในการจัดการขยะอย่างไรบ้าง

<u>ความร่วมมือในการจัดการขยะมีพัฒนาการอย่างไร</u>

1. ความร่วมมือในการจัดการขยะมีการเปลี่ยนแปลงอะไรบ้างนับจากเมื่อความร่วมมือเกิดขึ้น (ยกตัวอย่างเช่น การมีส่วนร่วมของประชาชน, การทำสัญญาว่าจ้าง, การร่วมทุน ฯลฯ)
2. ในการเปลี่ยนแปลงแต่ละขั้นมีกระบวนการอย่างไรบ้าง

<u>ประโยชน์ของความร่วมมือในการจัดการขยะ</u>

1. ประโยชน์หลักของความร่วมมือในการจัดการขยะมีอะไรบ้าง
2. ชุมชนของท่านต้องดำเนินการอย่างไรบ้างเพื่อให้ได้มาซึ่งประโยชน์เหล่านี้ (ยกตัวอย่างเช่น จัดอบรมองค์กรของชุมชน, ปรับปรุงการแชร์ข้อมูล, ปรับปรุงช่องทางปัญหาการจัดการขยะของประชาชน, ลงทุนกับเครื่องมือใหม่ๆ ฯลฯ)
3. ท่านคิดว่ามีปัจจัยอะไรบ้างที่ช่วยสร้างประโยชน์จากความร่วมมือในการจัดการขยะให้เพิ่มขึ้น (ยกตัวอย่างเช่น บุคลากรที่เพิ่มขึ้น, การอบรมที่ดีขึ้นและอาศัยผู้เชี่ยวชาญมากขึ้น, งบประมาณจากรัฐที่เพิ่มขึ้น, ข้อมูลสารสนเทศที่ดีขึ้น ฯลฯ)

<u>การจัดการบุคลากรของความร่วมมือในการจัดการขยะ</u>

1. ชุมชนของท่านมีการคัดเลือกบุคลากรที่จะมาทำงานให้ความร่วมมือในการจัดการขยะอย่างไร
2. บุคลากรเหล่านี้ต้องทำงานให้ความร่วมมือในการจัดการขยะเป็นภาระงานหลักหรืองานพิเศษ

<u>อนาคต</u>

1. แผนการสำหรับความร่วมมือในการจัดการขยะในอนาคตเป็นอย่างไรบ้าง
2. ความร่วมมือในการจัดการขยะมีวิธีการใดบ้างในการผลักดันให้สมาชิกสร้างสรรค์ไอเดียใหม่ๆ หรือนวัตกรรมเพื่อการจัดการขยะในอนาคต

คำถามสำหรับหน่วยงานของรัฐ (ที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะขององค์กรปกครองส่วนท้องถิ่น)

<u>เพราะเหตุใดความร่วมมือในการจัดการขยะจึงเกิดขึ้น</u>

1. องค์กรของท่านได้เข้าร่วมในความร่วมมือในการจัดการขยะตั้งแต่เมื่อไหร่
2. ปัญหาในการจัดการขยะของพื้นที่ท่าน ที่ต้องการได้รับการแก้ไขคืออะไรบ้าง
3. องค์กรหรือบุคคลใดมีความสำคัญในการเริ่มต้นความร่วมมือนี้
และองค์กรหรือบุคคลใดมีความสำคัญที่สุด
4. ปัจจัยอะไรบ้างที่สำคัญในการกระตุ้นให้เกิดความร่วมมือนี้ขึ้น (ยกตัวอย่างเช่น นโยบายรัฐบาล, ปัญหาสุขภาพ (อันเนื่องมาจากขยะ), การเปลี่ยนแปลงภาวะผู้นำทางการเมืองหรือการบริหารจัดการของการปกครองท้องถิ่น ฯลฯ)

<u>ความร่วมมือในการจัดการขยะดำเนินการอะไรบ้าง</u>

1. ขอบเขตของ ‘การจัดการขยะ’ ของความร่วมมือในการจัดการขยะของท่านคืออะไร
ครอบคลุมกิจกรรมอะไรบ้าง
2. มีการจัดตั้งศูนย์เฉพาะเพื่อดำเนินการจัดการขยะหรือไม่
ถ้ามี กรุณาอธิบายลักษณะของศูนย์นั้น
    -สมาชิกใดของความร่วมมือบริหารจัดการศูนย์นั้น
    -งานของศูนย์นี้มีอะไรบ้าง

(หมายเหตุ: แนวคิดเรื่องศูนย์เฉพาะทางเกี่ยวข้องกับนโยบายรัฐบาลในการจัดคลัสเตอร์ขององค์กรปกครองส่วนท้องถิ่นในการจัดการขยะ

<u>ความร่วมมือในการจัดการขยะมีการบริหารจัดการอย่างไร</u>

1. โครงสร้างในการจัดการความร่วมมือในการจัดการขยะเป็นแบบไหน ยกตัวอย่างเช่น
    -มีคณะกรรมการหรือผู้บริหารหรือไม่ ถ้ามี คนเหล่านี้มาจากไหน
    -คณะกรรมการหรือผู้บริหารนี้พบปะกันบ่อยแค่ไหน
    -มีระดับของการบริหารจัดการหรือไม่ ถ้ามี, สมาชิกของแต่ละระดับมีหน้าที่ความรับผิดชอบอย่างไรบ้าง
2. องค์กรของท่านมีภาระหน้าที่อะไรบ้างในความร่วมมือในการจัดการขยะ
3. การจัดการทางการเงินของความร่วมมือในการจัดการขยะเป็นอย่างไรบ้าง
4. ท่านอธิบาย ‘ความสัมพันธ์ในการทำงาน’ ของสมาชิกของความร่วมมือในการจัดการขยะว่าอย่างไร

ยกตัวอย่างเช่น

-สมาชิกมีวิธีการติดต่อกันอย่างไร (เป็นทางการหรือไม่เป็นทางการ) และเป้าหมายในการติดต่อกันคืออะไรบ้าง

-องค์กรของท่านมีทัศนคติต่อองค์กรปกครองส่วนท้องถิ่น และสมาชิกอื่นๆของความร่วมมือในการจัดการขยะอย่างไรบ้าง

-องค์กรปกครองส่วนท้องถิ่นปฏิบัติตามหน่วยงานของรัฐ

-องค์กรของรัฐมีอิทธิพลต่อการตัดสินใจขององค์กรปกครองส่วนท้องถิ่น

<u>ความร่วมมือในการจัดการขยะมีพัฒนาการอย่างไร</u>

1. ความร่วมมือในการจัดการขยะมีการเปลี่ยนแปลงอะไรบ้างนับจากเมื่อความร่วมมือเกิดขึ้น (ยกตัวอย่างเช่น การมีส่วนร่วมของประชาชน, การทำสัญญาว่าจ้าง, การร่วมทุน ฯลฯ)
2. ในการเปลี่ยนแปลงแต่ละขั้นมีกระบวนการอย่างไรบ้าง

<u>ประโยชน์ของความร่วมมือในการจัดการขยะ</u>

1. ประโยชน์หลักของความร่วมมือในการจัดการขยะมีอะไรบ้าง
2. องค์กรของท่านต้องดำเนินการอย่างไรบ้างเพื่อให้ได้มาซึ่งประโยชน์เหล่านี้ (ยกตัวอย่างเช่น จัดอบรมองค์กรของชุมชน, ปรับปรุงการแชร์ข้อมูล, ปรับปรุงช่องทางปัญหาการจัดการขยะของประชาชน, ลงทุนกับเครื่องมือใหม่ๆ ฯลฯ)
3. ท่านคิดว่ามีปัจจัยอะไรบ้างที่ช่วยสร้างประโยชน์จากความร่วมมือในการจัดการขยะให้เพิ่มขึ้น (ยกตัวอย่างเช่น บุคลากรที่เพิ่มขึ้น, การอบรมที่ดีขึ้นและอาศัยผู้เชี่ยวชาญมากขึ้น, งบประมาณจากรัฐที่เพิ่มขึ้น, ข้อมูลสารสนเทศที่ดีขึ้น ฯลฯ)

<u>การจัดการบุคลากรของความร่วมมือในการจัดการขยะ</u>

1. องค์กรของท่านมีการคัดเลือกบุคลากรที่จะมาทำงานให้ความร่วมมือในการจัดการขยะอย่างไร
2. บุคลากรเหล่านี้ต้องทำงานให้ความร่วมมือในการจัดการขยะเป็นภาระงานหลักหรืองานพิเศษ

<u>อนาคต</u>

1. แผนการสำหรับความร่วมมือในการจัดการขยะในอนาคตเป็นอย่างไรบ้าง
2. ความร่วมมือในการจัดการขยะมีวิธีการใดบ้างในการผลักดันให้สมาชิกสร้างสรรค์ไอเดียใหม่ๆ หรือนวัตกรรมเพื่อการจัดการขยะในอนาคต

คำถามสำหรับองค์กรประเภทอื่นๆ (ยกตัวอย่างเช่น เอ็นจีโอ, สถาบันการศึกษา และองค์กรเอกชน)

<u>เพราะเหตุใดความร่วมมือในการจัดการขยะจึงเกิดขึ้น</u>

1. องค์กรของท่านได้เข้าร่วมในความร่วมมือในการจัดการขยะตั้งแต่เมื่อไหร่
2. ปัญหาในการจัดการขยะของพื้นที่ท่าน ที่ต้องการได้รับการแก้ไขคืออะไรบ้าง
3. องค์กรหรือบุคคลใดมีความสำคัญในการเริ่มต้นความร่วมมือนี้
และองค์กรหรือบุคคลใดมีความสำคัญที่สุด
4. ปัจจัยอะไรบ้างที่สำคัญในการกระตุ้นให้เกิดความร่วมมือนี้ขึ้น (ยกตัวอย่างเช่น นโยบายรัฐบาล, ปัญหาสุขภาพ (อันเนื่องมาจากขยะ), การเปลี่ยนแปลงภาวะผู้นำทางการเมืองหรือการบริหารจัดการของการปกครองท้องถิ่น ฯลฯ)

<u>ความร่วมมือในการจัดการขยะดำเนินการอะไรบ้าง</u>

1. ขอบเขตของ ‘การจัดการขยะ’ ของความร่วมมือในการจัดการขยะของท่านคืออะไร
ครอบคลุมกิจกรรมอะไรบ้าง
2. มีการจัดตั้งศูนย์เฉพาะเพื่อดำเนินการจัดการขยะหรือไม่
ถ้ามี กรุณาอธิบายลักษณะของศูนย์นั้น
    -สมาชิกใดของความร่วมมือบริหารจัดการศูนย์นั้น
    -งานของศูนย์นี้มีอะไรบ้าง

(หมายเหตุ: แนวคิดเรื่องศูนย์เฉพาะทางเกี่ยวข้องกับนโยบายรัฐบาลในการจัดคลัสเตอร์ขององค์กรปกครองส่วนท้องถิ่นในการจัดการขยะ

<u>ความร่วมมือในการจัดการขยะมีการบริหารจัดการอย่างไร</u>

1. โครงสร้างในการจัดการความร่วมมือในการจัดการขยะเป็นแบบไหน ยกตัวอย่างเช่น
    -มีคณะกรรมการหรือผู้บริหารหรือไม่ ถ้ามี คนเหล่านี้มาจากไหน
    -คณะกรรมการหรือผู้บริหารนี้พบปะกันบ่อยแค่ไหน
    -มีระดับของการบริหารจัดการหรือไม่ ถ้ามี, สมาชิกของแต่ละระดับมีหน้าที่ความรับผิดชอบอย่างไรบ้าง
2. องค์กรของท่านมีภาระหน้าที่อะไรบ้างในความร่วมมือในการจัดการขยะ
3. การจัดการทางการเงินของความร่วมมือในการจัดการขยะเป็นอย่างไรบ้าง
4. ท่านอธิบาย ‘ความสัมพันธ์ในการทำงาน’ ของสมาชิกของความร่วมมือในการจัดการขยะว่าอย่างไร

ยกตัวอย่างเช่น

-สมาชิกมีวิธีการติดต่อกันอย่างไร (เป็นทางการหรือไม่เป็นทางการ) และเป้าหมายในการติดต่อกันคืออะไรบ้าง

-องค์กรของท่านมีทัศนคติต่อองค์กรปกครองส่วนท้องถิ่น และสมาชิกอื่นๆของความร่วมมือในการจัดการขยะอย่างไรบ้าง ยกตัวอย่างเช่น องค์กรของท่านไว้วางใจองค์กรเหล่านั้นหรือไม่

<u>ความร่วมมือในการจัดการขยะมีพัฒนาการอย่างไร</u>

1. ความร่วมมือในการจัดการขยะมีการเปลี่ยนแปลงอะไรบ้างนับจากเมื่อความร่วมมือเกิดขึ้น (ยกตัวอย่างเช่น การมีส่วนร่วมของประชาชน, การทำสัญญาว่าจ้าง, การร่วมทุน ฯลฯ)
2. ในการเปลี่ยนแปลงแต่ละขั้นมีกระบวนการอย่างไรบ้าง

<u>ประโยชน์ของความร่วมมือในการจัดการขยะ</u>

1. ประโยชน์หลักของความร่วมมือในการจัดการขยะมีอะไรบ้าง
2. องค์กรของท่านต้องดำเนินการอย่างไรบ้างเพื่อให้ได้มาซึ่งประโยชน์เหล่านี้ (ยกตัวอย่างเช่น จัดอบรมองค์กรของชุมชน, ปรับปรุงการแชร์ข้อมูล, ปรับปรุงช่องทางปัญหาการจัดการขยะของประชาชน, ลงทุนกับเครื่องมือใหม่ๆ ฯลฯ)
3. ท่านคิดว่ามีปัจจัยอะไรบ้างที่ช่วยสร้างประโยชน์จากความร่วมมือในการจัดการขยะให้เพิ่มขึ้น (ยกตัวอย่างเช่น บุคลากรที่เพิ่มขึ้น, การอบรมที่ดีขึ้นและอาศัยผู้เชี่ยวชาญมากขึ้น, งบประมาณจากรัฐที่เพิ่มขึ้น, ข้อมูลสารสนเทศที่ดีขึ้น ฯลฯ)

<u>การจัดการบุคลากรของความร่วมมือในการจัดการขยะ</u>

1. องค์กรของท่านมีการคัดเลือกบุคลากรที่จะมาทำงานให้ความร่วมมือในการจัดการขยะอย่างไร
2. บุคลากรเหล่านี้ต้องทำงานให้ความร่วมมือในการจัดการขยะเป็นภาระงานหลักหรืองานพิเศษ

<u>อนาคต</u>

1. แผนการสำหรับความร่วมมือในการจัดการขยะในอนาคตเป็นอย่างไรบ้าง
2. ความร่วมมือในการจัดการขยะมีวิธีการใดบ้างในการผลักดันให้สมาชิกสร้างสรรค์ไอเดียใหม่ๆ หรือนวัตกรรมเพื่อการจัดการขยะในอนาคต

คำถามสำหรับหน่วยงานของรัฐ (ซึ่งเกี่ยวข้องกับการกำหนดนโยบาย, การดำเนินตามนโยบาย, การติดตามนโยบาย และการประเมินผลนโยบายรัฐบาลที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะขององค์กรปกครองส่วนท้องถิ่น)

<u>การกำหนดนโยบาย</u>

1. องค์กรของท่านมีบทบาทอะไรที่เกี่ยวข้องกับนโยบายความร่วมมือในการจัดการขยะ
2. เป้าหมายของนโยบายรัฐบาลที่เกี่ยวกับความร่วมมือในการจัดการขยะคืออะไรบ้าง
3. มีนโยบายรัฐบาลนโยบายใดบ้างที่สนับสนุนองค์กรปกครองส่วนท้องถิ่นของไทยให้ร่วมมือกับองค์กรอื่นๆในระดับนานาชาติเพื่อการจัดการขยะ
4. มีแนวทางหรือยุทธศาสตร์ใดบ้างที่รัฐบาลใช้ในการสร้างศักยภาพในการดำเนินความร่วมมือขององค์กรปกครองส่วนท้องถิ่นในการจัดการขยะ
5. ทิศทางของนโยบายรัฐบาลในการพัฒนาศักยภาพในการดำเนินความร่วมมือขององค์กรปกครองส่วนท้องถิ่นในการจัดการขยะ ยกตัวอย่างเช่น
    - -ศักยภาพในการจัดสรรทรัพยากร
    - -ศักยภาพในการมีความโปร่งใส
    - -ศักยภาพในการตรวจสอบได้
    - -ศักยภาพในการดึงความร่วมมือจากภาคส่วนต่างๆ
    - -ศักยภาพในการเพิ่มโมเมนตัมของการดำเนินนโยบาย, ทรัพยากร หรือความตระหนักถึงความสำคัญของความร่วมมือในการจัดการขยะของท้องถิ่น

<u>การดำเนินนโยบาย</u>

1. รูปแบบในการดำเนินนโยบายรัฐบาลที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะเป็นอย่างไรบ้าง
2. องค์กรปกครองส่วนท้องถิ่นขนาดเล็ก (เทศบาลตำบลและอบต.) มีความแตกต่างจากองค์กรปกครองส่วนท้องถิ่นขนาดใหญ่ (อบจ., เทศบาลนคร และเทศบาลเมือง) ในการปฏิบัติตามนโยบายรัฐบาลที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะอย่างไรบ้าง
3. องค์กรของท่านสนับสนุนหรือเพิ่มศักยภาพในการดำเนินความร่วมมือขององค์กรปกครองส่วนท้องถิ่นขนาดเล็กในการจัดการขยะอย่างไรบ้าง
4. เกิดปัญหาใดบ้างจากการที่รัฐบาลดำเนินนโยบายที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะ ยกตัวอย่างเช่น ความขัดกันของนโยบายและระเบียบ ของรัฐบาลและขององค์กรปกครองส่วนท้องถิ่น

การติดตามนโยบาย

มีนโยบายรัฐบาลนโยบายใดบ้างที่ติดตามการดำเนินนโยบายรัฐบาลที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะ

การประเมินผลนโยบาย

มีนโยบายรัฐบาลนโยบายใดบ้างที่ประเมินผลการดำเนินนโยบายรัฐบาลที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะ

ช่องว่างของนโยบาย

1. มีช่องว่างระหว่างนโยบายรัฐบาลและจุดยืนในการตัดสินใจขององค์กรปกครองส่วนท้องถิ่นที่เกี่ยวข้องกับความร่วมมือในการจัดการขยะที่ควรได้รับการแก้ไขบ้างหรือไม่ ถ้ามี ช่องว่างเหล่านี้จะถูกจัดการแก้ไขได้อย่างไร
2. มีช่องว่างระหว่างเจตจำนงของนโยบายรัฐบาลและการปฏิบัติตามนโยบายนี้ขององค์กรปกครองส่วนท้องถิ่นบ้างหรือไม่ ถ้ามี ช่องว่างเหล่านี้จะถูกจัดการแก้ไขได้อย่างไร
3. ท่านมีมาตรการหรือเครื่องมือในการป้องกันช่องว่างระหว่างนโยบายรัฐบาลและการปฏิบัตินโยบายขององค์กรปกครองส่วนท้องถิ่นที่ต้องการนำเสนอหรือไม่
4. ท่านคิดว่ารัฐบาลไทยควรปรับรูปแบบความสัมพันธ์ระหว่างรัฐบาลกับองค์กรปกครองส่วนท้องถิ่นต่อความร่วมมือในการจัดการขยะหรือไม่ ถ้าควร ควรปรับทางไหนบ้าง

Appendix L: Topic Guide

Topic Guide

A research participant's name…

An organisation's name…

Date… Time…

Questions for LAOs

WHY WAS THE WASTE MANAGEMENT COLLABORATION CREATED?

1. When did your waste management collaboration begin?

2. What are waste management problems in your local areas that are needed to be solved?

3. Which organisations or individuals were important in creating the collaboration? And which organisation or individual was most important?

4. Were there any other factors that were important in stimulating the creation of the collaboration? (e.g. a government policy, a health crisis (caused by waste), changes in the political or managerial leadership of the local government, etc.)

WHAT DOES THE WASTE MANAGEMENT COLLABORATION DO?

1. What is the scope of 'waste management' for your waste management collaboration? What activities does it undertake?

2. What are organisations that are members of the waste management collaboration?

3. Are there any specific plants that have been created for operation of waste management?
If so, please describe the characteristics of them e.g.
-Which member administrates the plant?
-What are tasks of the plant?
(Note: The idea of specific plant is related to the government policy on local administrative clustering for waste disposal.)

HOW IS THE WASTE MANAGEMENT COLLABORATION MANAGED?

1. What is the management structure for the waste management collaboration? e.g.
   -Are there any committees or boards? If so, who attend these?
   -How often do the committees or boards meet?
   -Are there different management levels? If so, what are the responsibilities of the different members of the different management levels?

2. Are there any contracts or MOUs for the waste management collaboration? If so, what do these contracts or MOUs cover?

3. How is the finance of the waste management collaboration organised?

4. How can you describe 'working relationship' among members of the waste management collaboration? e.g.
   -How do members of the collaboration contact each other (is it formal or informal?)?
   And what are purposes to contact each other?

5. What will happen if there is a problem of emergency? Are there any strategies to deal with these emergency problems or other obstacles of the collaboration?

6. How information of the collaboration is promoted to the public?

HOW HAS THE WASTE MANAGEMENT COLLABORATION DEVELOPED?

1. In what ways has the waste management collaboration changed since it was started? (e.g. public participation, contracting out, joint venture, etc.)

2. Are there any regulations or policies to control these changes?

3. What are the different processes of the collaboration at these different changes?

BENEFITS OF THE WASTE MANAGEMENT COLLABORATION

1. What are the main benefits of the waste management collaboration?

2. What has your organisation had to do to achieve these benefits? (e.g. train community organisations, improve information sharing, improve reporting of waste management problems by local citizens, invest in new equipment, etc.)

3. Is there anything that you think it would help bring more benefits to the waste management collaboration? (e.g. additional staff, better training or expertise, more government funding, better information technology etc.)

STAFFING FOR THE WASTE MANAGEMENT COLLABORATION

1. How do you appoint your staff to work for the waste management collaboration?

2. Do these staff work for the collaboration as their core work or extra work?

3. Have you recruited external consultants or specialists to work for the collaboration? If so, how have you recruited them?

RESOURCES FOR THE WASTE MANAGEMENT COLLABORATION

1. What are information technologies that have been used for the collaboration?

2. How have you gained technical supports for the collaboration from other organisations?

3. How can you explained your leadership in the collaboration?

4. How have you created local awareness of the waste management collaboration?

5. How have you created active linkages between members of the collaboration?

FUTURE

1. What are plans for the waste management collaboration in the future?

2. How does the collaboration urge the members to create innovative ideas or innovations for future waste management?

Questions for Local Communities

WHY WAS THE WASTE MANAGEMENT COLLABORATION CREATED?

1. When did your local community participate in the waste management collaboration?

2. What are waste management problems in your local areas that are needed to be solved?

3. Which organisations or individuals were important in creating the collaboration? And which organisation or individual was most important?

4. Were there any other factors that were important in stimulating the creation of the collaboration? (e.g. a government policy, a health crisis (caused by waste), changes in the Political or managerial leadership of the local government, etc.)

WHAT DOES THE WASTE MANAGEMENT COLLABORATION DO?

1. What is the scope of 'waste management' for your waste management collaboration? What activities does it undertake?

2. Are there any specific plants that have been created for operation of waste management?
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1. What is the management structure for the waste management collaboration? e.g.
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-How often do the committees or boards meet?
-Are there different management levels? If so, what are the responsibilities of the different members of the different management levels?

2. Which tasks that your local community undertakes in the collaboration?

3. How is the finance of the waste management collaboration organised?

4. How can you describe 'working relationship' among members of the waste management collaboration? e.g.
-How do members of the collaboration contact each other (is it formal or informal?)?
And what are purposes to contact each other?

-What are your local community's attitudes towards a LAO and other members of the collaboration? e.g. Are they trusted by your community?

HOW HAS THE WASTE MANAGEMENT COLLABORATION DEVELOPED?

1. In what ways has the waste management collaboration changed since it was started? (e.g. public participation, contracting out, joint venture, etc.)

2. What are the different processes of the collaboration at these different changes?

BENEFITS OF THE WASTE MANAGEMENT COLLABORATION

1. What are the main benefits of the waste management collaboration?

2. What has your local community had to do to achieve these benefits? (e.g. train community organisations, improve information sharing, improve reporting of waste management problems by local citizens, invest in new equipment, etc.)

3. Is there anything that you think it would help bring more benefits to the waste management collaboration? (e.g. additional staff, better training or expertise, more government funding, better information technology etc.)

STAFFING FOR THE WASTE MANAGEMENT COLLABORATION

1. How do you select your local citizens to participate in the waste management collaboration?

2. Do these persons work for the collaboration as their core work or extra work?

FUTURE

1. What are plans for the waste management collaboration in the future?

2. How can the collaboration urge the members to create innovative ideas or innovations for future waste management?

Questions for Central Government Agencies (Involved Organisations)

WHY WAS THE WASTE MANAGEMENT COLLABORATION CREATED?

1. When did your organisation participate in the waste management collaboration?

2. What are waste management problems in your local areas that are needed to be solved?

3. Which organisations or individuals were important in creating the collaboration? And which organisation or individual was most important?

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2. Which tasks that your organisation undertakes in the collaboration?

3. How is the finance of the waste management collaboration organised?

4. How can you describe 'working relationship' among members of the waste management collaboration? e.g.
-How do members of the collaboration contact each other (is it formal or informal?)?

And what are purposes to contact each other?
-What are your organisation's attitudes towards a LAO and other members of the collaboration? e.g. trust others?
-LAOs obey central government agencies
-Central government agencies intervene LAOs' decision making.

HOW HAS THE WASTE MANAGEMENT COLLABORATION DEVELOPED?

1. In what ways has the waste management collaboration changed since it was started? (e.g. public participation, contracting out, joint venture, etc.)

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1. What are the main benefits of the waste management collaboration?

2. What has your organisation had to do to achieve these benefits? (e.g. train community organisations, improve information sharing, improve reporting of waste management problems by local citizens, invest in new equipment, etc.)

3. Is there anything that you think it would help bring more benefits to the waste management collaboration? (e.g. additional staff, better training or expertise, more government funding, etc.)

STAFFING FOR THE WASTE MANAGEMENT COLLABORATION

1. How do you appoint your staff to participate in the waste management collaboration?

2. Do these staff work for the collaboration as their core work or extra work?

FUTURE

1. What are plans for the waste management collaboration in the future?

2. How can the collaboration urge the members to create innovative ideas or innovations for future waste management?

Questions for Other Types of Organisations (e.g. NGOS, academic institutes and private sector)

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3. Which organisations or individuals were important in creating the collaboration? And which organisation or individual was most important?

4. Were there any other factors that were important in stimulating the creation of the collaboration? (e.g. a government policy, a health crisis (caused by waste), changes in the Political or managerial leadership of the local government, etc.)

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-How do members of the collaboration contact each other (is it formal or informal?)?

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2. How can the collaboration urge the members to create innovative ideas or innovations for future waste management?

Questions for National Organisations (Policy Making, Policy Implementation, Policy Monitoring and Policy Evaluation)

POLICY MAKING

1. What is your organisation's role in relation to the waste management collaboration policies?

2. What are the goals of national policies on waste management collaboration?

3. Are there any policies that support Thai LAOs to collaborate with other organisations for waste management at an international level?

4. What are approaches or strategies used to build LAOs' collaborative capacities for waste management?

5. What are policy directions for improving LAOs' collaborative capacities for waste management? e.g.

-capacity in resource allocation
-capacity in transparency
-capacity in accountability
-capacity to reinforce participation from other sectors
-capacity to increase momentum for policy implementation, resources or local awareness of waste management collaboration

POLICY IMPLEMENTATION

1. What are patterns of policy implementations of the waste management collaboration?

2. How different are small LAOs (Tambon Municipalities and Tambon Administrative Organisations) responding to the waste management collaboration policies compared to large LAOs (Provincial Administrative Organisations, City and Town Municipalities)?

3. How do you support or enhance collaborative capacities of the small LAOs in waste management?

4. Are there any policy implementation problems? e.g. conflicting or contradictory policies and rules of national government agencies and LAOs

POLICY MONITORING

Are there any policies to monitor the implementation of the waste management collaboration policies?

POLICY EVALUATION

Are there any policies to evaluate the implementation of the waste management collaboration policies?

POLICY GAPS

1. Are there any gaps between national policies and local decision premises on waste management collaboration that can be addressed? If so, how these gaps can be fulfilled?

2. Are there any gaps between policy intentions at the national level and local policy implementations on waste management collaboration? If so, how these gaps can be fulfilled?

3. What measures or tools would you like to suggest preventing gaps between national policies and local policy implementation on waste management collaboration?

4. Do you think the Thai national government agencies should redesign how they relate to LAOs in waste management collaboration? If so, in what ways?

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